Medical Life

HYGEIA

AUG 20 1930

THE HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

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HYGEIA

THE HEALTH MAGAZINE

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Keith Don Musselman

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Contributors to This Issue

RACHEL ASH is a children's physician in the East and will be remembered for her sensible article on children's parties in the May issue of HYGEIA. DR. EARL F. MORRIS, as director of health and physical education at a state teachers' college, describes for other executives the objectives of his department.

CARL D. CLARKE is director of the department of art and photography of the University of Maryland School of Medicine. MRS. LOUISE J. PEET is associate professor in the department of foods and nutrition at Iowa State College, at Ames, Iowa.

PHILIP L. RILEY is assistant director of the bureau of physical welfare of the public schools of Cleveland. DR. RICHARD E. STIFEL has written many articles for HYGEIA on such diverse subjects as fogs and phobias, broken arms and congenital deformities.

MARGUERITE GAUGER, PH.D., has made a special study of children's likes and dislikes in food and has written a book about it. This month's article on the effects of deafness on character concludes the series by DR. THURMAN B. RICE. ESTHER A. CANTER writes her story of the struggling Tollivers, a school nurse's experience, from Connersville, Ind.

DR. B. C. H. HARVEY, whose series on anatomy has evoked wide interest, is at present on a trip to Amsterdam, Holland, where he will attend an international meeting of anatomists.

DR. OSCAR T. SCHULTZ is a frequent contributor to HYGEIA, his most recent article having been "Tales That Dead Men Tell," in October, 1929. In a forthcoming issue he will discuss the antiquated coroner system as contrasted with the modern plan of medical examiners.

This is HARRIOTT B. CHURCHILL'S second story for HYGEIA. Her first was "Barby's Visit," in April, 1929. MARION WATHEN FOX is a resident of Toronto, Canada.

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Foods and the Man

An Editorial

ONE of the astounding developments of the past quarter century has been the changing nature of the foods of civilized man. There was a time when the basic diet of the American people was largely meat, potatoes, bread, sugar, oatmeal, farina and such possible accessories as molasses and apples. Today the diet is varied to appeal to every possible factor in the sense of taste. Few persons realize that what we call the sense of taste includes not only an appreciation of bitter, sweet, salt and sour but also the odor of the substances eaten, the feel of the food upon the tongue and a wide variety of degrees of taste perception.

In order to appreciate food and to digest it properly, one must eat it with pleasure. Appetite is closely associated with digestion; hence, the modifications that have taken place in the preparation of food may be considered for the good of the public health even if they add somewhat to the cost of production.

Beyond the sense of appetite, however, comes the added factor of scientific knowledge developed within the past quarter century. Foods were considered first for their energy value alone, and that value was counted in calories. Then came the realization of the fact that there are in foods other factors besides the energy factor. These factors include not only the vitamins necessary to life and growth and health, but also proteins, carbohydrates, fats and mineral salts intimately associated with the building of new tissues and the repair of degenerated tissues as well as the freedom from disease. Not only must all of these factors be present in foods, but they must be in proper proportions.

THE American diet today, therefore, presents a spectacle that would bewilder the simple eaters of the previous century. It provides fresh fruits of many varieties in great abundance; fresh vegetables, particularly green and leafy vegetables, in considerable amounts; cuts of meat, such as liver, heart, brains and kidneys, which were formerly discarded, and liberal quantities of milk, cream and butter.

The human being eats for a number of reasons: he eats first of all to overcome hunger, which is a painful sensation; he eats to repair broken-down tissues and to build new tissues; he eats to sustain his body and health, and to develop a state of nutrition that will aid him in warding off disease; he eats to provide his body with essential food factors, without which that body will inevitably succumb to disease. In our modern conception of food, he eats also to see whether or not it will be possible to build a better type of human being, at least from the physical point of view, than has existed in the past. In view of the vast amount of scientific knowledge that has been assembled regarding foods and their relationship to the whole of man, what folly it is for any one to follow the misguided notions of single track minds which associate with single food substances the responsibility for freedom from human ailments.

AS EVIDENCE of the importance that foods have achieved in relationship to modern life, the advertising of foods now represents the third or fourth item in the advertising field. In the campaigns for food products special emphasis is laid on the vitamins and the mineral salts and people are being urged to eat more and more of certain types of food substances. Some foods are offered as veritable panaceas. Special arguments are advanced for whole-wheat products as contrasted with refined wheat products. Claims are made for alkaline and acid virtues of various food substances. In a field in which progress has been so rapid, yet where so much remains to be done, the need has become obvious for some agency which could examine the claims made and keep the public informed as to the things that are known as contrasted with those that are unknown, as to claims that are justified as contrasted with those that are unwarranted.

Such an agency has been created by the American Medical Association. Its Committee on Foods is examining the advertising claims of food products, criticizing these claims and inducing manufacturers in the vast majority of instances to modify claims that are exaggerated and to abandon those not based on scientific evidence. The information assembled by this committee is available for readers of HYGEIA. Questions concerning proprietary food substances as well as all ordinary food substances will be answered through HYGEIA or directly by mail when the products concerned do not have general interest.

Children's Colds

AND HOW TO PREVENT THEIR DEVELOPMENT

By
Rachel Ash

It takes very little detective work to trace an infant's cold to some person with whom the child has come in contact.

VACATION days are drawing to a close. All over the land families of children are returning from seashore or country, sun tanned, glowing with health, eager for the activities of their winter program.

In the not very distant future, however, the doctor's telephone bell will ring. "Doctor, please come to see the baby. He has a cold." When the doctor arrives he is met with a recital of the mother's regret that she held the child before an open window or that baby had been taken out on such a raw, gray day as yesterday. Our doctor fails to be impressed with this version of the origin of the illness. "How long have you had your cold?" is his comment. "Oh, I haven't much of a cold, just a little stuffiness of the nose for the past few days."

It takes very little detective work thus to trace the source of an infant's cold to a previous cold in some person with whom the child has come in contact. For the word "cold" is a misnomer. A cold is always an infection; that is, it is always due to some disease-producing germ that has established itself within the tissues of the nose and throat.

Babies Have No Immunity

Such infection is transmitted directly from individual to individual. In the nose and throat of the normal baby at birth we find no germs—harmful or otherwise. Theoretically, if it were possible to separate this new-born infant from all other persons he would never acquire a nasal infection because of absence of the germs of this disease. This holds true regardless of the degree of cold to which the infant may in future life be exposed. The Eskimos of the Arctic regions were a healthy race, free from colds, until visited by explorers and traders from the great nations of the earth, since which time colds and other infections have decimated their numbers and reduced their physical stamina. It is for this reason that Denmark has banned all outside peoples from Greenland, in order to keep the natives of this little island free from disease introduced from without.

Cold Germ Evades Discovery

There is as yet no certainty as to the causative agent of the common cold, though recent experiments indicate that the organism is so minute as to be able to pass through the finest filter. Whether or not the earliest organisms that penetrate the tissues are thus invisible, once the infection has begun secondary organisms of larger dimensions quickly gain a foothold and proliferate. These secondary invaders are often responsible for the profuse nasal discharge and for involvement of other regions. If we make a microscopic study of the discharge streaming from baby's nose we shall find amidst pus cells and mucus great numbers of small round or oval bodies—so-called pneumococci or streptococci. And if alarming complications arise from this seemingly innocent cold—such as abscess of the middle ear or mastoid, meningitis or pneumonia—the same small bodies will be found in the pus of the secondarily involved areas.

We stress colds in infants because they are often of serious import. The smallness of the structures concerned favors the passage of micro-organisms from the back of the nose into the ears and mastoid; thence through the soft bone of the skull into the brain. There is also greater tendency to invasion of the lung by the breathing in of infectious material. Having had small opportunity to acquire resistance against bacterial invasion, the infant may be acutely prostrated by an infection that would produce only the mildest of symptoms in adults.

A cold, however, is not to be regarded lightly in any child. If the invading organism—whether primary or secondary—is sufficiently virulent or the child's health sufficiently below par, serious complications may occur at any age. Even relatively mild colds, especially if recurrent, may lower the child's sense of well-being and produce a rundown condition.

How best can we keep our happy troop of youngsters of the autumn free from colds in the winter?

Don't Kiss the Baby

If we hold ever before us the thought that colds are infectious our most important preventive measure follows of itself. Remembering that colds are transferred from person to person, we will guard our children from exposure to individuals already infected. This applies to children and older members of the same household as well as to outsiders. No one will be permitted to kiss small chidren. Have you not often marveled at the inconsistency of the mother who will boil all things connected with the baby's feeding and will then sprinkle his face with a fine shower of germs by talking directly at him or by kissing him?

The rule of protection works both ways, moreover. Keep your children with colds away from others. This will benefit both your child and his playmates. If given proper treatment at home as soon as the slightest evidence of a cold is noted, his recovery will be more rapid, complications less likely and the danger of infection to others lessened. Remember that the discharges from nose and throat are laden with disease-producing organisms. Boil all handkerchiefs or, better still, use as substitutes paper napkins that may be burned. Keep the eating utensils separate and wash them in hot water heavily lathered with soap.

Even with the exercise of the utmost precautions the child will at times be unavoidably exposed to colds. If he has been living under proper hygienic conditions he will be better able to resist the infection than otherwise. A suitable regimen includes an adequate number of hours spent in sleep; a diet well proportioned in tissue-building and energy-contributing constituents and containing its necessary quota of vitamins; and activities so planned that the child is neither excessively stimulated nor overfatigued. If you live in a region in which there is little winter sunshine a course of ultraviolet treatments under medical supervision will often improve the color, appetite and general state of health of your child.

Colds would be less frequent if more attention were paid to proper ventilation. Hot, dry rooms filled with stagnant air are ideal incubating chambers for such infections. Disease germs thrive in the high temperature. Heat and lack of moisture, by producing unhealthy dryness, increase the vulnerability of the lining membrane of the nose. To insure maximum efficiency of the circulatory and nervous mechanism of the skin, stimulation by constantly changing air currents of shifting temperature is desirable. We are beginning to realize that within the tissues of the skin there may exist defensive agents of great value in the battle against infection. It is important, therefore, that the skin be kept in a healthy state.

For further emphasis we repeat—"To guard against colds guard against infection." Dr. Samuel Johnson is said to have stated that the perfect gentleman undoubtedly would be an Irish gentleman but he had never seen one. So the mother's theory that baby's cold is due to exposure alone may be correct but I have never seen such a cold. A low temperature in itself is of no importance in the production of colds unless a causative organism is present. The probability of the disease occurring moreover is greater if, through previous exposure to a hot, dry atmosphere, the surface tissues of the body have become abnormal. Good body resistance is the important disease preventive.

A Cold Enters the Kindergarten

When one person has a cold we can usually find others similarly afflicted. In a certain kindergarten comprising twenty children a child appeared one morning sniffing and irritable—just beginning a cold. He was permitted to play freely with the other children for the remainder of the school session. One week later the daily roll had dropped to eight children. The remaining youngsters were home with illnesses of varying severity, transmitted in some cases to younger brothers and sisters, so that all in all the damage created by one small child, sent to kindergarten with frank evidence of an early cold, was considerable.

Keep your child away from germs so far as is practicable. Build up his general resistance by a proper hygienic regimen under suitable medical supervision. Watch the atmosphere of your home. Keep the temperature between 68 and 70 F., the air moist and freely moving. If you have done all these, you will have done all in your power to keep your children as fit throughout the winter as at the end of the summer vacation.

By
Earl F.
Morris

Ewing Galloway

Silhouette of a Yale student seated in his room in Harkness Memorial Quadrangle, with the Harkness tower in the background.

Going to College for Your Health

NOT SO long ago if a young man said he was going to college for his health he was merely trying to be funny. All the health he received from his college courses he could "put in his eye," to quote another phrase of the period.

True, the college student of two or three decades ago had his physiology text, a work prepared by an anatomist and physiologist. The student memorized the names of all the bones of the body, traced the blood in its circuit through the body and performed many other feats of mental gymnastics. But what did this have to do with his health? About as much as did the mechanistic exercises of the period, in which certain unified movements were performed at absolute and instantaneous obedience to command.

Let us consider a modern college health program that has as its aim the graduation of students whose health has been protected while in college, who have a reasonable amount of health knowledge, and who have been taught to apply their knowledge in the form of health practice.

Such a college health program will have three distinct phases: (a) health service to students while in college, (b) health instruction, and (c) health practice. There is, and should be, a certain amount of overlapping.

The college health service offers many opportunities for health instruction of an individual nature. A great amount of the health instruction should be motivated by things arising in the health service.

One part of the college health service should be a thorough physical examination of every student at least once each school year. If possible, there should also be a midyear check-up of progress made in the correction of physical defects.

Many colleges today make it a practice to examine only new students entering school. Others require all students to undergo a physical examination at the beginning of each school year. Quite often these examinations are done by outside physicians who are in practice and whose major interest is in their practice. The students have little opportunity actually to become acquainted with the doctors, who usually run the examinations through in record time and are gone until the next year. The physical findings are often recorded in an unintelligible fashion and no attempt is made to

summarize them in the form of a definite estimate of the physical status of each student, so that he may know just where he stands as compared with his fellow students or as compared with himself at the time of the last examination. Little opportunity is given for consultation or for explanation of the recommendations made. The student is expected to embrace without question the recommendations of some one who is a perfect stranger to him.

Thought He Was Physical Wreck

A student who recently underwent such an examination said, "The doctors told me that my tonsils were a fright and my nose was worse; also that my posture was bad. I got the impression that I was a physical wreck. They told me to have my tonsils out, although they have never bothered me and I have not had a cold for a year. No other recommendations as to how I might improve were made and I was given no aid in pulling myself out of the rut. I wondered if the doctor who told me to have my tonsils removed was in that business himself."

The reaction of this student is typical. The physical examination failed of its purpose because it omitted the educational side. This boy would have liked to know why certain recommendations were made. To expect one who has never had tonsil symptoms of which he is aware and who feels fine to spend a neat sum of money and submit to an operation simply because some stranger advises it, is expecting too much. He must be told why, perhaps several times, by some one in whom he has learned to place confidence. This boy would have appreciated knowing how he stood physically as compared with his fellows. As a result of his examination he developed an inferiority complex. Actually, when good and bad points were summed up, he was physically above the average. Another mistake made in his case was the failure to follow up and offer real help.

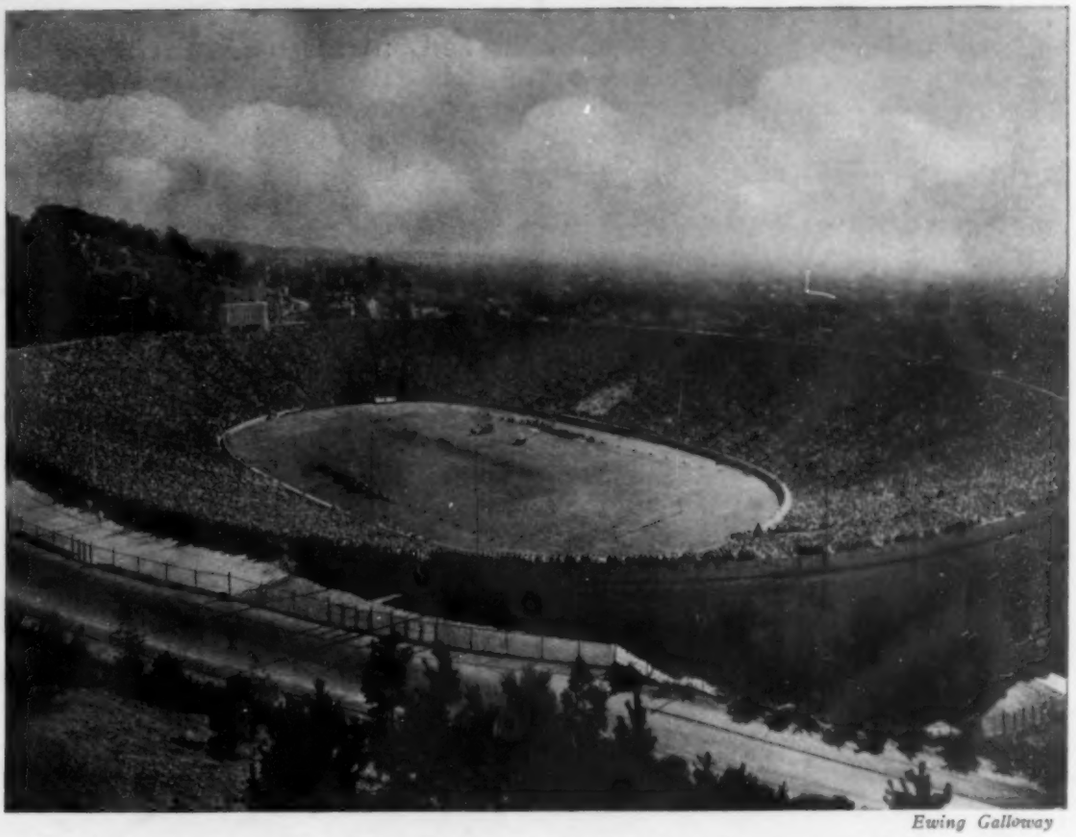
A physical examination, if it is to be of much value, must be made carefully and recommendations presented in such a way that confidence is inspired. The examiner should be some one with whom the students come in frequent contact. As a physical examination proceeds, definite values should be placed on degrees of physical perfection or imperfection, so that at the end of the examination the whole may be summed up in the form of a definite score. In this way the student is placed in competition with himself and with his fellow students from semester to semester or from year to year. A definite measuring stick in the form of a score is as necessary in a college health program as is a system of grading in other lines of endeavor.

Real Guidance in Private Consultations

More leisurely private consultations following the physical examination offer limited opportunities for real health guidance. We are told that Charles McMurry, when asked what he

Ewing Galloway

Looking through Amsterdam Avenue Gate toward a tower of the College of the City of New York.



Football packs the huge bowl of the University of California. The goal in college athletics now is to have every student taking part in some form of sport.

Ewing Galloway

would do if he had his life to live over, said: "I would certainly teach, but would want to reserve two-thirds of my time for personal conferences with my pupils." In every college health program there should be definite hours each day during which students can discuss health problems with those qualified to give advice. It is in these leisurely conferences that many problems of physical, emotional and social health are revealed—problems that are often not discovered in the course of the routine physical examinations.

How Much Medical Treatment?

Just how much actual treatment to include in a college health service is a problem. On the whole, it does not seem wise to attempt the treatment of conditions that require prolonged care. However, the health program is strengthened if some treatment is offered. This treatment should be mainly in the nature of first aid and preventive therapy. Students will often allow seemingly minor ailments to go without proper attention because they do not see the importance of spending a few dollars early in order to prevent greater expense and physical discomfort later. Just here is a place where the college health service, by offering convenient and inexpensive early treatment, has an opportunity to demonstrate that an ounce of prevention really is worth a pound of cure. The most outstanding results are obtained in those epidemic diseases which can be controlled by vaccination.

Another point in favor of a limited amount of treatment is the added force given to classroom instruction. Students have a greater respect for theoretical health instruction when they know it comes from those who are capable of putting the theory into actual practice.

Included in the health service to students should be interdepartmental cooperative projects. The health department can work to good advantage with the department of home economics in assisting students who have problems in nutrition. With the health department furnishing physical findings having a bearing on weight and with the dietitian offering guidance in diet, we have an ideal combination for solving problems in nutrition.

In a similar manner the college physician furnishes the instructor in physical education with a complete report of conditions that are best corrected by properly guided physical activities. Speech defects are best attacked by the cooperative efforts of the college physician, the English or speech teacher, and the psychologist. The departments of health and biology can work together to a distinct advantage in solving problems in health of questionable bacteriologic origin. Departments of dramatics and music often find that some of their most perplexing problems have physical causes and are best solved by cooperation with the health department.

Health Instruction

Health instruction may be informal and formal. Health, more than most other subjects, lends itself to the informal type of instruction.

The opportunities for informal health instruction on the average college campus are almost

without limit. The very presence on the campus of a health department with its equipment and laboratory serving as a clearing house for problems in health is a silent declaration on the part of the college that the proper setting for a highly trained mind is a well cared for body. The clinical scales found in every health department waiting room and the weight charts hanging near by proclaim the fact that these pieces of equipment are used in the solution of important problems. A clean, well kept and well equipped college health office is in itself a protest against the unhygienic offices that we sometimes encounter, and an endorsement of cleanliness and thoroughness of technic in the solution of health problems.

If health examinations are conducted as they should be and if opportunity is given for follow-up consultations and even a certain amount of treatment, a wonderful opportunity is afforded for informal health instruction of the highest type. It is too often the case that the busy practitioner has neither time nor inclination to instruct his patients. There are probably few times when the patient sees his doctor that he does not feel the urge to ask questions and learn more about the basic facts of his case but he is sometimes kept silent by the doctor's attitude toward questions. Individual contacts made with students in the college health office should be regarded as opportunities for worth-while instruction. The time when a student is face to face with a health problem that brings him to the office for consultation is the ideal time for giving instruction along all lines pertaining to his case. He may even be directed to literature on the subject.

Health from Textbooks

Although the modern trend is to emphasize the informal side of health instruction, no program of health guidance is complete without a certain amount of formal classroom instruction. The biggest problem in this connection is what not to teach. The temptation is great to include in the subject matter much that is really intended only for the specialist. The amount of available material is almost limitless, but instructors must realize that the average college student is seeking only those things which he himself can use in making his life more complete. Health educators must make a distinction between the medical student and the student whose major interest is in something else. If too much involved detail is presented, the student "cannot see the woods for the trees" and he becomes disinclined toward further investigation.

Only those subjects should be presented whose application to the everyday life of the student is fairly obvious. Among these are a study of the fundamentals of body structure and body functions, personal hygiene, mental hygiene, social hygiene, first aid, those phases of home nursing and care of the sick which every one should know, and—in teachers' colleges—the hygiene of the schoolroom. The subjects named are usually taught in the health department proper. Other departments have a close relationship to health. Bacteriology, physiological chemistry, clothing, dietetics and sociology all aid in rounding out the program of formal health instruction. This is not a complete list.

Health Practice

Health practice is considered as synonymous with physical activities or physical education. In reality it should include all preventive and therapeutic health measures advocated by the health department whether or not such measures have to do with physical activities. In the college program the student should be urged to develop into a healthier and more complete physical being just as he is urged to develop mentally. This may include attention to decayed teeth, softened gums, imperfect vision, weight and postural defects.

That part of the health practice program which is included in physical activities has undergone radical changes in the last thirty years. Then military precision and unison were emphasized. Today the program of physical activities makes a stronger appeal to the play instinct, which is present even in adults and needs opportunity for expression. Today the subject matter and the manner of presentation are planned so that there is an appeal to the sense of enjoyment. This increases the likelihood that the student will take at least a part of the physical activities program out into life with him. A variety of activities must be presented in order that each student may find something he can use in later life.

In fact, the carry-over into life after college should be emphasized all through any program of health guidance. Before he has left college the student should have learned to regard regular medical and dental inspections with their subsequent preventive measures as necessary and sensible steps in health economy just as a regular inspection of his automobile is an economic measure. The value of a wholesome diet should be indelibly stamped on his mind. He should have acquired a liking for worth-while literature on health.

College graduates should be leaders wherever they are. The example that the college sets in health guidance should make the graduate unselfish in this respect. He should be a leader in the movement for better health in his community. The teamwork necessary in games and other physical activities and the effect that individual preventive health measures have on the health of the entire student body aid in the development of a social consciousness necessary in the mental make-up of any community leader.

Restless Sleepers Get Restful Sleep

"I SLEPT like a log!" Thus does the refreshed guest set at ease his hostess when she inquires at breakfast how he passed the night.

Well, he didn't sleep like a log. Nobody does—not a healthy man at least, or a healthy woman or a healthy child. People don't sleep like logs; they just think they do. Even some doctors have been fooled about our sleeping habits. They tell us to sleep with our spinal column straight and our legs extended. Most of them tell us not to sleep on our left side, as it interferes with the heart action and other vital processes.

The United States Army urges its soldiers to "lie flat, sit straight and stand tall." During sleep they are not to "curl up and buckle in the

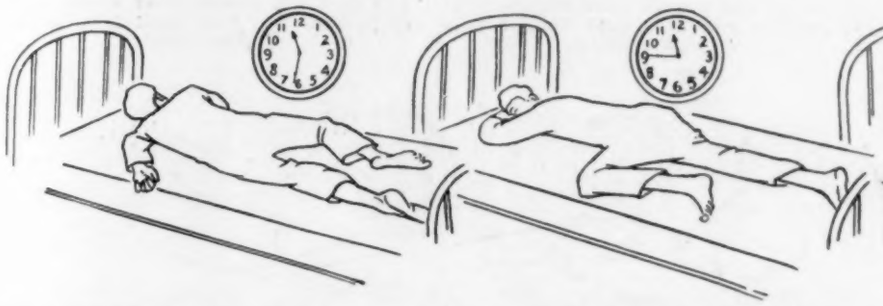


Fig. 1.—Position assumed at 11:31, one minute after the subject went to bed; held until 11:45, a total of fourteen minutes.

Fig. 2.—Position assumed at 11:45 p. m., less than one minute after abandonment of position 1. Held until 11:56, a total of eleven minutes.

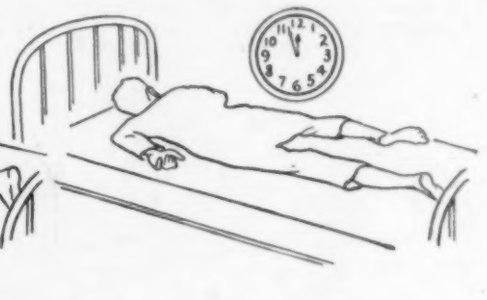


Fig. 3.—Position assumed at 11:56 p. m., less than one minute after abandonment of position 2. Held until 12:03, a total of seven minutes.

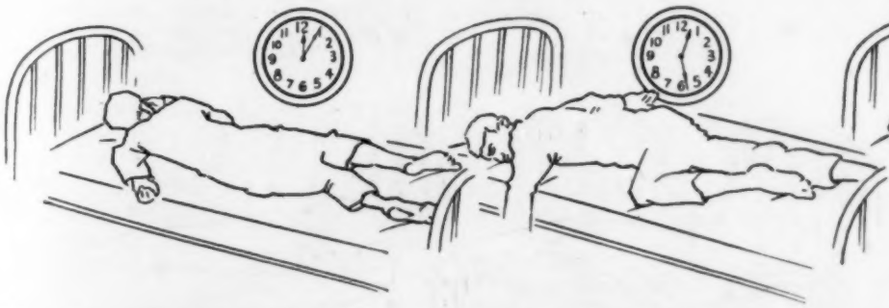


Fig. 4.—Position assumed at 12:04 a. m., more than one minute after abandonment of position 3. Held until 12:27, a total of twenty-three minutes.

Fig. 5.—Position assumed at 12:27 a. m., less than one minute after abandonment of position 4. Held until 1:14, a total of forty-seven minutes.

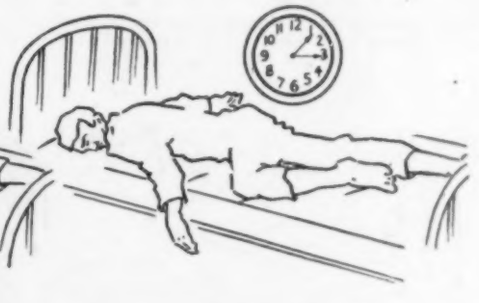


Fig. 6.—Position assumed at 1:14 a. m., less than one minute after abandonment of position 5. Held until 1:22, a total of eight minutes.

Fig. 7.—Position assumed at 1:22 a. m., less than one minute after abandonment of position 6. Held until 1:48, a total of twenty-six minutes.

Fig. 8.—Position assumed at 1:48 a. m., less than one minute after abandonment of position 7. Held until 2:39, a total of fifty-one minutes.

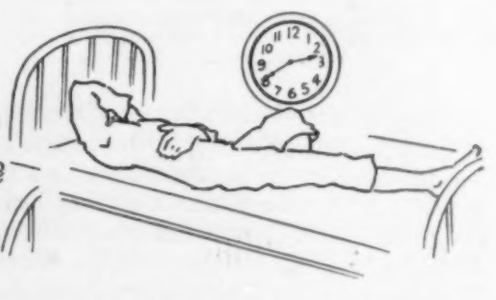


Fig. 9.—Position assumed at 2:39 a. m., less than one minute after abandonment of position 8. Held until 3:10, a total of thirty-one minutes.

middle." They must "never forget that the best way to use the body for all purposes is as if it were stretched as tall as possible."

Yet in spite of our own conscious intentions, in spite of our doctor's advice, in spite of the whole U. S. Army, we assume the most cramped and contorted sleeping positions. Not only do we not lie straight as a log but we toss about as no log is tossed that is not shooting the rapids or being carried along by a savage current.

The motion picture camera has revealed surprising facts about our sleeping habits. In *The Journal* of the American Medical Association of June 28, H. M. Johnson, T. H. Swan and G. E. Weigand of the University of Pittsburgh discuss their nightly observations of sleepers made over a period of two years with the help of the movie camera.

"The most typical position of our healthy sleepers changes from one gross bodily position to another between twenty and forty-five times in the course of a typical night of eight hours, each of these stirs being separated from its nearest neighbor by at least two and a half minutes," say the investigators, whose study was conducted as a part of the Simmons Investigation of Sleep at Mellon Institute, which is connected with the University of Pittsburgh.

This statement is based on the results of an intensive and carefully controlled study of 150 persons, and on more than a million times during which postures were held without major changes.

Of the healthy subjects studied by Messrs. Johnson, Swan and Weigand, twenty-two were college men housed in an experimental dormi-

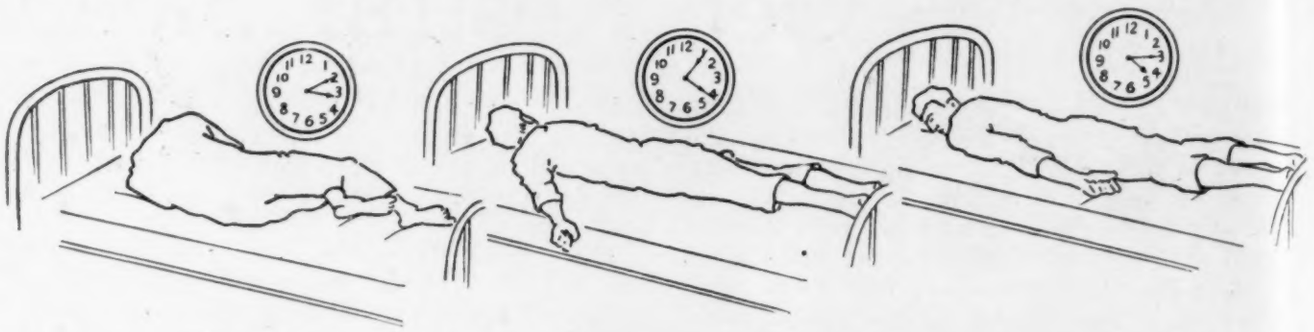


Fig. 10.—Position assumed at 3:10 a. m., less than one minute after abandonment of position 9. Held until 4:06, a total of fifty-six minutes.

Fig. 11.—Position assumed at 4:06 a. m., less than one minute after abandonment of position 10. Held until 4:14, a total of eight minutes.

Fig. 12.—Position assumed at 4:14 a. m., less than one minute after abandonment of position 11. Held until 4:18, a total of four minutes.

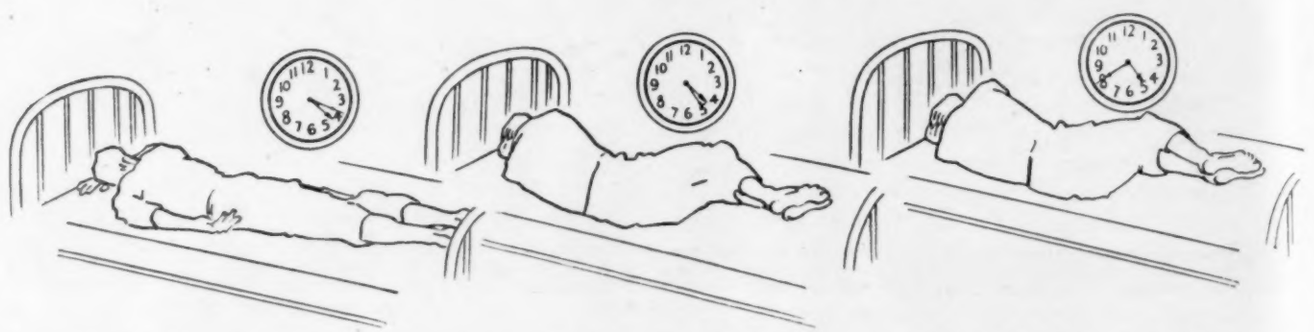


Fig. 13.—Position assumed at 4:18 a. m., less than one minute after abandonment of position 12. Held until 4:24, a total of six minutes.

Fig. 14.—Position assumed at 4:24 a. m., less than one minute after abandonment of position 13. Held until 4:40, a total of sixteen minutes.

Fig. 15.—Position assumed at 4:40 a. m., less than one minute after abandonment of position 14. Held until 5:01, a total of twenty-one minutes.

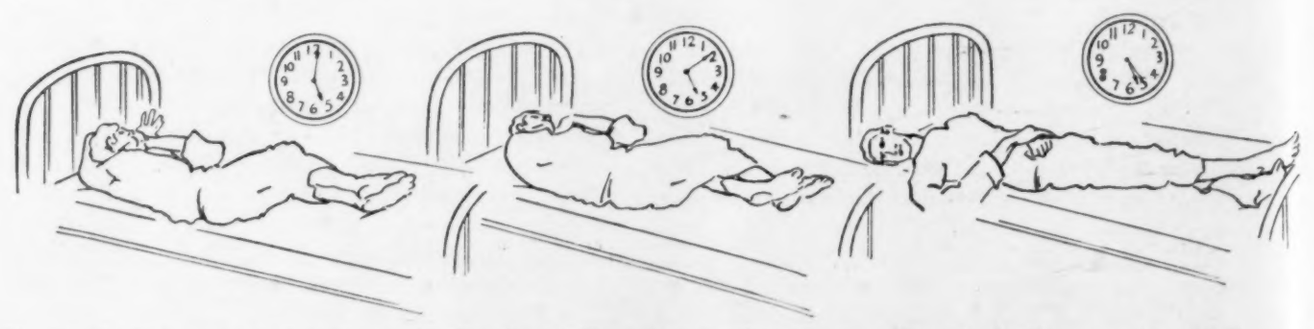


Fig. 16.—Position assumed at 5:01 a. m., less than one minute after abandonment of position 15. Held until 5:09, a total of eight minutes.

Fig. 17.—Position assumed at 5:09 a. m., less than one minute after abandonment of position 16. Held until 5:24, a total of fifteen minutes.

Fig. 18.—Position assumed at 5:24 a. m., less than one minute after abandonment of position 17. Held until 5:43, a total of nineteen minutes.

tory; twenty were married persons near middle age, and two were children. Others were patients at a tuberculosis sanatorium and at a hospital for nervous and mental disease. Use was also made of a similar study of twenty young children and of varsity athletes.

A motion picture camera is arranged so that it automatically takes a picture of the sleeper when he first touches the bed; a second picture one minute after he has ceased to stir; a third when he stirs again, and so on.

The face of a telechron clock, which hangs beside the bed, is photographed with the sleeper. Thus it can be told, by as close as one second, how long the sleeper maintains each posture that he keeps for as long as a minute.

A 100 watt lamp, hung directly above the bed, provides illumination. The subjects wear dark taffeta bandages over their eyes at first, but after three or four nights they become accustomed to the light and disregard it. The photographic records show no more stirring than the motility meter shows in a somewhat similar experiment in a dark room.

The subjects are dressed in dark pajamas in contrast to the white sheets. No covers are allowed, so artificial ventilation and control of the temperature of the sleeping chamber at 80 degrees F. are employed.

The drawings show the various positions assumed by one representative sleeper on one typical night; they were made from enlargements of the original photographs.

This sleeper, like most others, has a repertoire of more than a dozen gross postures. If he uses a bed spring and mattress that permit all of

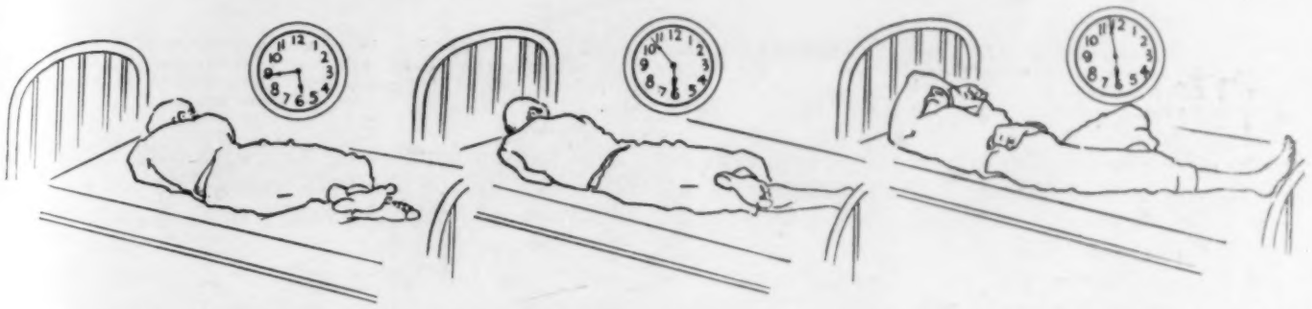


Fig. 19.—Position assumed at 5:43 a. m., less than one minute after abandonment of position 18. Held until 5:51, a total of eight minutes.

Fig. 20.—Position assumed at 5:51 a. m., less than one minute after abandonment of position 19. Held until 5:57, a total of six minutes.

Fig. 21.—Position assumed at 5:57 a. m., less than one minute after abandonment of position 20. Held until 6:01, a total of four minutes.

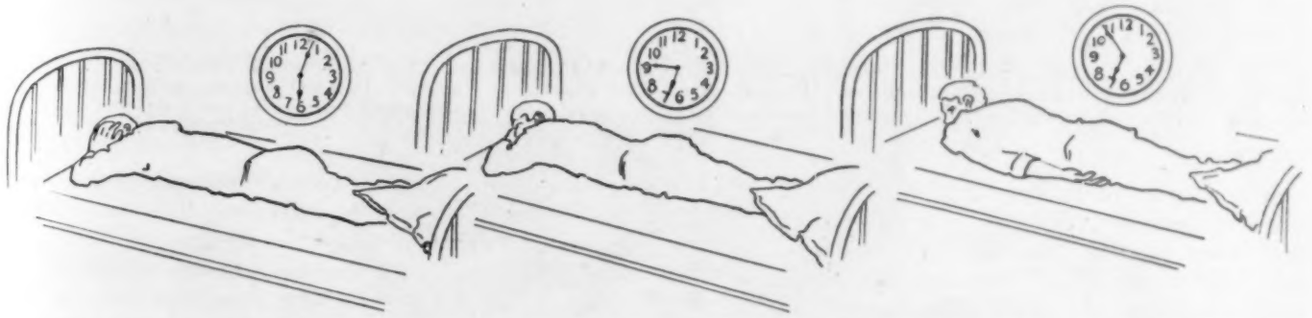


Fig. 22.—Position assumed at 6:01 a. m., less than one minute after abandonment of position 21. Held until 6:44, a total of forty-three minutes.

Fig. 23.—Position assumed at 6:44 a. m., less than one minute after abandonment of position 22. Held until 6:54, a total of ten minutes.

Fig. 24.—Position assumed at 6:54 a. m., less than one minute after abandonment of position 23. Held until 6:59, a total of five minutes.

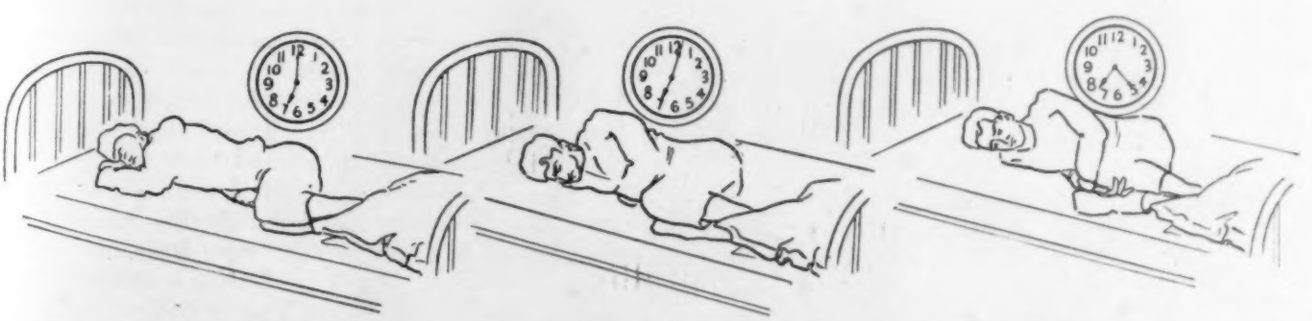


Fig. 25.—Position assumed at 6:59 a. m., less than one minute after abandonment of position 24. Held until 7:01, a total of two minutes.

Fig. 26.—Position assumed at 7:01 a. m., less than one minute after abandonment of position 25. Held until 7:23, a total of twenty-two minutes.

Fig. 27.—Position assumed at 7:23 a. m., less than one minute after abandonment of position 26. Held until 7:26, a total of three minutes.

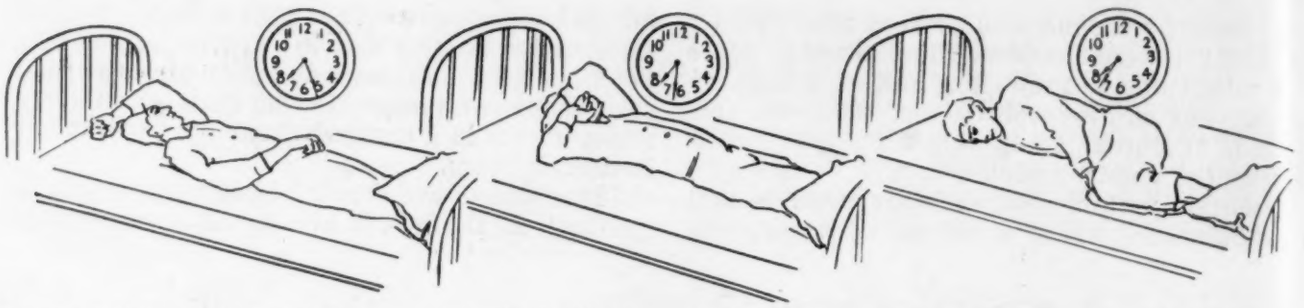


Fig. 28.—Position assumed at 7:26 a. m., less than one minute after abandonment of position 27. Held until 7:31, a total of five minutes.

Fig. 29.—Position assumed at 7:31 a. m., less than one minute after abandonment of position 28. Held until 7:35, a total of four minutes.

Fig. 30.—Position assumed at 7:36 a. m., less than two minutes after abandonment of position 29. Held until 7:43, a total of seven minutes.

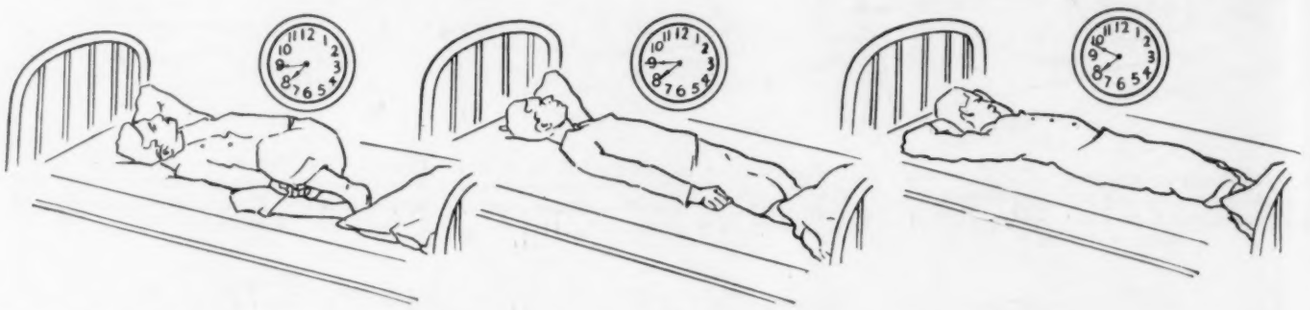


Fig. 31.—Position assumed at 7:44 a. m., less than two minutes after position 30 was abandoned. Held until 7:45, or for one minute.

Fig. 32.—Position assumed at 7:45 a. m., less than one minute after position 31 was abandoned. Held until 7:47, a total of two minutes.

Fig. 33.—Position assumed at 7:47 a. m., less than one minute after position 32 was abandoned. Held until 7:55, a total of eight minutes.

them to be held in comfort, he resorts to every one—or nearly every one—on each night, changing from one to the other in a fairly regular sequence. Half of the thirty-three postures shown in the sketches would have been prohibited if the bed had been shared with another.

All these positions that are maintained for fairly long periods are contorted; in particular, the spinal column is always curved laterally, usually bowed backward, and twisted. All the postures that are favored require some supporting strain, which is often exerted against the shoulder joint or the hip joint of one side, the femur and humerus being used as props (figs. 1-7, 13, 25).

The posture that requires the least effort for maintaining is the prone position, or lying on the stomach. In the case illustrated, the sleeper adopted it on six different occasions, for a total of one and a quarter hours of the eight and one third which he spent in bed.

If the sleeper is provided with an unfavorable combination of spring and mattress, the investigators say, the effect is to reduce the variety of postures taken but not to reduce the frequency of shifting from one to another.

The investigators say in conclusion: "It looks as if the most restful night's sleep is characterized by the use of a considerable variety of bodily positions, all of which are contorted; none of which indicate anything like 'complete relaxation' of all parts of the skeletal muscular system, such as one may observe in a fainting person; but each of which appears to be well adapted to the relief of irritation that was set up in the posture last taken, as well as in the day's activities. To get a healthy person to spend the night in any one position that the physicians recommend, one would need to strap him to a frame, or else put him into a cast and then prop the cast."

So it appears that no matter how "loglike" the person feels his slumber has been, in reality it was far from that. No healthy sleeper spends the night in a few positions, each of which is held for a long time. Only hospital patients heavily medicated with opiates slept like logs, in the investigation described here.

A few years ago no such observations could have been made. The only possible method of making such a test would have been to station a watcher at the side of a bed in a lighted room and to have him set down each posture that the subject assumed and the time he held it.

True, doctors and nurses have kept watch over the sick, but their interest was not in the postures assumed and their observations were casual. As soon as the sick man improved, they stopped their all-night vigils. To sit beside a healthy person for a period of several weeks merely to observe his sleeping habits would have been an expensive procedure. So such investigation as this had to wait the development of some such method of scientific observation as the one used here by Messrs. Johnson, Swan and Weigand.

The Movies in Medicine

By Carl D. Clarke

CERTAIN types of deformities and skin conditions show up exceptionally well in photographs. In fact, today nearly all the important hospitals of the country have photographic departments. Not only does still photography play an important part in medicine but the use of the motion picture is rapidly becoming popular. Many schools of medicine have a department of motion picture photography for making teaching films. Commercial firms have established departments for the sole production of medical film. The Eastman Kodak Company, in conjunction with the College of Physicians and Surgeons, has produced many films of major importance.

The motion picture film brings medical students into closer touch with clinical material and cases, providing information concerning outward evidences of certain psychologic disturbances, such as neurosis and epileptic seizures. Both typical and unusual cases can be preserved on the motion picture film for study at any time. Today many students receive a doctor's degree before they have seen certain types of important cases which were not available during their attendance at clinics. Through the motion picture the student can so familiarize himself with such cases that he will be able to recognize similar cases in his daily practice after he leaves medical school.

A specific example of the value of motion pictures to medicine would be provided by photographic studies of a number of walking gaits, such as ataxia, propulsion and Parkinson's disease (paralysis agitans), which would undoubtedly help the young doctor to make a diagnosis. Cases are ofttimes available for hospital routine instruction, but they are difficult to differentiate.

The so-called close-ups shown by the movies will bring the student in contact with the operating table or with careful diagnosis of the patient's condition as made by skilled practitioners, the instructive captions and titles helping him to understand what it is all about. Such a view of the operation could never be obtained from an amphitheater seat.

Enlargement from a motion picture film showing the outward symptoms in a case of intercranial hemorrhage.

The details of an arterial nerve, intestinal anastomosis (the establishment of communication between two portions of the intestines), bone grafting, the application of mechanical principles of direction, the technic of tendon and muscle transplantation for deformities and of the application of deep sutures are brought home and fixed in the memory by the motion picture as by no other means of instruction, save by actual experience gained while performing these operations.

The late Dr. R. Tunstall Taylor conducted a series of experiments on medical students in the following way: He would lecture to one group of students using lantern slides only; to another group he would lecture, using the motion picture, and to a third group, he would lecture using no pictures at all.

Taking a movie of a sick child for comparison as his cure progresses.

He considered each of the three groups of students of the same intelligence and he lectured on the same subject to each group. At the end of the lectures he gave each group the same examination on the particular subject. The results of the use of motion pictures were so gratifying that he wrote an article on the value of the motion picture for teaching purposes, which was published in the *American Journal of Orthopedic Surgery* for November, 1918. On page 414, he says: "This mode of instruction in conjunction with the didactic lecture has been found to yield a higher average mark per student than any other mode of teaching."

Advantages over Lantern Slides

The motion picture film has the advantage over the lantern slide in that the component parts of the lecture are not so easily disarranged, broken or lost. The film is lighter and more easily handled than the same number of subjects on lantern slides. One can study the physician's or surgeon's movements with particular reference to his economy in time, which is not possible with the slides. There is an attachment for the projector on a motion picture machine that permits the film to be stopped on a single picture, thereby covering every advantage that the lantern slide offers. Furthermore, the projector can be stopped during the showing of a film for a lecture or short talk on each scene of the film. Individual pictures from the motion picture negative can be enlarged for reproduction in medical journals or for use as lantern slides.

Amateur medical motion pictures can be compared with professional medical motion pictures only as the amateur dramatic picture compares with the professional. They are defective, with few exceptions. The small camera does not have the refinements of the standard camera, and, as a result of the method of reversing the image in development, the pictures can never be as proficient. The better films are all made on the large 35 millimeter negative stock. When it is desired to project it with a 16 millimeter projector it is reduced from the 35 millimeter negative to the 16 millimeter positive. In this way film of any subject, made with a standard camera, can be obtained in the two sizes.

Dr. Joseph B. De Lee of the Chicago Lying-In Hospital, who has long used film in his work, predicts great possibilities for motion pictures in medicine. He writes, "One of the great developments in educational motion picture films is the talking picture. We are going to wire our new hospital for the eventual talkie."

Dr. J. Eastman Sheehan of the Post-Graduate Hospital, New York, is employing color motion pictures.

Photomicrographs

Not only does the motion picture camera record the effects of disease on the faces and bodies of patients but it also can take pictures of the germs and organisms that caused these diseases. With the aid of the microscope, the motion picture camera can photograph a living organism five hundred times smaller than the head of a pin, so that it can be shown on a screen and made to look the size of a lion or a tiger. Indeed, some of these germs have a far greater power to destroy human life than the lion or tiger. An example of this work is well shown in a film called "Sleeping Death," which shows the germ of African sleeping sickness. This germ is named the trypanosome and is spread by the tsetse fly.

With the aid of the stop motion picture camera and the microscope, pictures of cell division have been made. A single cell that takes hours to divide can be seen to divide in

a matter of a few seconds. Such work has been done by Dr. Warren Lewis of the Carnegie Institute of Embryology. He perfected a technic by which he could remove from a female rabbit the fertilized ovum a few hours after mating. This ovum was placed in a culture medium under a microscope. The microscope was then placed in an incubator over which was the stop motion picture camera. The camera slowly took pictures at intervals of that fertilized ovum.

The ovum is seen to divide into two cells, from two cells into four, from four into eight, and from eight into sixteen, until the screen is covered with living cells. The watcher observes just what takes place at the very earliest stage of life of a mammal. This film is proof that human beings were at one time only microscopic organisms about a hundred times smaller even than the head of a pin. A fully formed babe is made up of millions of these microscopic cells. They can be seen by placing a small piece of skin under the microscope. As it takes many bricks to build a house, so it takes many cells to make up the human body.

Photographer making pictures of germ life through the microscope.

Another field in medicine that the motion picture has invaded is that of x-ray photography. Pictures have been made of our joints in motion and of the peristalsis of our intestines when a barium meal is given. These pictures can be made by either of two methods.

X-Ray Photography

The first is to make a series of roentgenograms, each in a slightly different position, in the usual way of making x-ray pictures on x-ray films, and then to copy the negatives with a motion picture camera, after the manner of making animated cartoons.

The second is to photograph the x-ray image with a motion picture camera, using negative film, directly from a fluorescent screen, the subject being interposed between the screen and the x-ray tube. A fluorescent screen made up of calcium tungstate or some similar salt will light up when x-rays strike it. The pictures are then taken in the same way as an ordinary light image is photographed.

The second method is difficult because of two facts: first, the physical properties of the materials used do not render a sufficiently fast exposure, and, second, human tissue will not stand the exposure to x-rays long enough to give a satisfactory result. Yet by one or both of the foregoing methods, some instructive and interesting motion pictures have been obtained.

Animated drawings possibly play as big a part in medical motion pictures as in any other branch of motion pictures. It is through the medium of these moving diagrams and shaded pictures that much is taught. The methods of doing this work, however, are technical as to detail.

Within a few years the medical student will undoubtedly see and listen to many sound medical motion pictures. Operations and clinical findings, as observed by famous physicians, are even now being shown on the screens of the medical schools. These films are accompanied by a lecture given by the surgeon who operated on the patient.

Can Never Replace Artist

Yet no matter how valuable the talking picture becomes, it can never be sufficient within itself to illustrate medicine. The artist and his work will continue to play their important part. In fact, many of the motion pictures in medicine and possibly the most valuable today are animated drawings made by artists.

The importance and value of visual education has become so obvious that it is only logical to expect an increase in the use of pictorial art in medicine in years to come.

Health à la Carte

By
Louise J. Peet

Real skill is needed to fit a menu to all the family.

WHEN a town jester was asked the breed of his dog, he replied, "Half hunter and half setter; half the time he is hunting for a bone, and the other half he is 'setting' gnawing it." And most of us who have the care of three meals a day for a family may easily feel that we are some relation to this dog. By the time we have assembled and disposed of the various parts of the three meals, even the most efficient of us finds that a goodly part of the day has been spent.

We have come to realize that we do not live to eat, but we eat to live. The question that confronts us is not only what we shall eat but also what foods or combinations of foods will give the best nutrition in the light of some remarkable new scientific discoveries.

Our Food Habits Influence Our Serenity

This question of what to eat involves a knowledge of the composition of foods, something about our organs of digestion, the fate of the foodstuffs in the body, and the physiologic effects they produce. We all would like to be mentally and physically serene, and the food we eat has a great deal to do in making this possible. In fact, nutritional efficiency may spell failure or success in life.

Professor Evvard, experimenting with hogs at Iowa State College, found that if various grain and mineral rations were placed in open bins accessible to the hogs they would themselves choose the ones that gave optimum growth and development. Unfortunately when choice is left to instinct in man, he does not get such favorable results, for he is governed chiefly by his desires.

Real skill is needed to fit a menu to all the family. The requirements of the preschool child, the adolescent and the grown-up differ more in the amounts of food needed than in kind. An efficient diet contains certain fundamental constituents that are necessary for all. Twenty years ago we used to emphasize calories and food nutrients, the proteins, fats and carbohydrates. To these we have now added a growing appreciation of the value of water and minerals in the diet, and a new knowledge of those mysterious essentials, the vitamins. Correlating these facts, the new dietetics is based on functional food value.

Since nitrogen is needed for the growth and repair of all tissues, we must have about 10 per cent of protein in our diet. It is found in meats, milk, cheese, eggs, cereals, nuts and legumes.

Our best sources of energy are the carbohydrates and starches found in sugars, cereals and breadstuffs. Cane sugar is a compact form of fuel for producing body heat; it gives zest to the diet, but too often it displaces other essential foods. Because a small amount of sweet gives a feeling of fulness it often spoils the appetite for the foods needed in building and regulating the body. Sweets, therefore, are best eaten near the end of a meal.

Sugars and Starches

Fruits contain sugars in an easily digestible form. Dried fruits have an abundant supply of sugar, and figs, dates and raisins, as well as apricots and prunes, should be used in place of candies except on special occasions.

Although sugars and starches are readily broken up by weak acids, they are not so easily digested in a strong acid medium. Since meat has a tendency to make the stomach more acid, it should be eaten with liberal helpings of

vegetables instead of with large servings of bread or rolls.

When the carbohydrate supply of energy runs low or is exhausted, fats are used, but fats always oxidize more completely when some carbohydrate is present. Because this is true, athletic directors have worked out a training diet for their athletes that contains fat and carbohydrate in the proportion of one part of fat to four parts of carbohydrate. Experimental study has shown that the fat is used most efficiently when this ratio exists.

Why Fats Are Needed

Fats give flavor to foods, they activate some of the digestive enzymes, and increase the flow of the digestive juices. Fats are needed, too, for their lipoid content, which is required for the growth and repair of the body cells. Fat pads the nerve cells and furnishes us, so to speak, with a cushion for the shock our nerves sometimes get. This may be one reason why fat people are usually more calm and easy going than thin people. Thin children, and thin adults too, are frequently nervous and high strung.

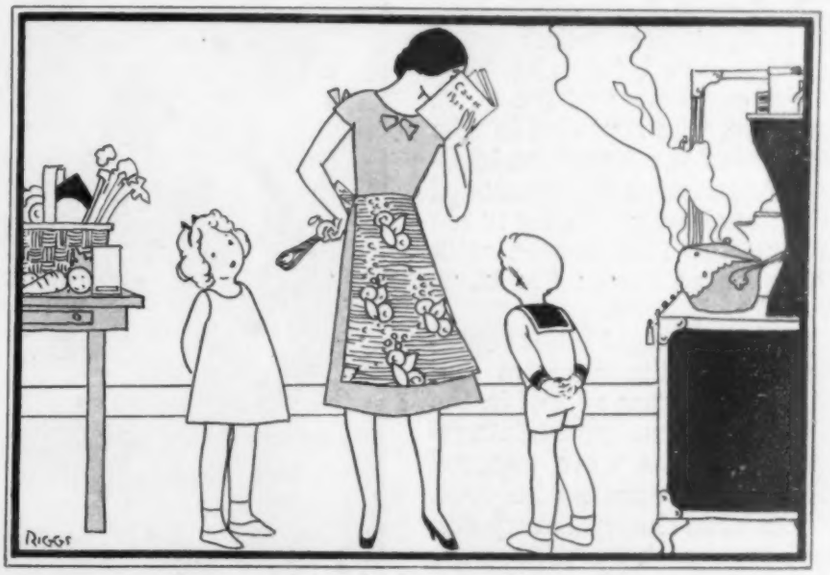
Fat helps to give the diet its staying qualities, for it leaves the stomach more gradually than do the carbohydrates and proteins, and it even slows up the digestion of these other food nutrients. During the war and for some months afterward because of a shortage of fat, many Europeans felt hungry continuously, though their actual needs were supplied. Too much fat, however, may retard digestion to such an extent that digestive upsets may follow.

For growing girls and boys fat is almost essential since it supplies an abundance of calories without excessive bulk. Fats and sugars, in their simplest forms, such as butter on bread or honey on the cooked breakfast cereal, are much more easily digested than when combined in cakes, puddings or fancy pastries. We look primarily to milk, vegetables and fruits for our supply of minerals and vitamins. The teeth need calcium to keep themselves in repair. A glass of milk furnishes about a third of each day's requirement for calcium. Green vegetables are sources of iron, that mineral so necessary for red blood and so hard to obtain in sufficient amounts. We get vitamin A from milk, butter, carrots, tomatoes and other yellow and green vegetables; vitamin B from green vegetables and whole wheat cereals. Oranges, grapefruit, cabbage and tomatoes give us vitamin C, and the ultraviolet rays of sunshine activate vitamin D.

In our northern states, sufficient sunshine is sometimes hard to get in the winter. Then we must resort to the drug store for cod liver oil or for the more recent preparation, viosterol, which, being many times more potent than cod liver oil, should be given according to a physician's advice.

Bulky Foods Aid Digestion

Constipation is a common digestive disturbance; in fact one of our most frequent ailments. One half of the bulk of the waste materials is made up of food residues, the other half of toxins and germs. These we must get rid of quickly if a high standard of health is to be maintained. The intestinal muscles push the waste matter along. They are stimulated and exercised by the food pressing against them. To do this food must have bulk. Because of their high percentage of cellulose, fruits and vegetables give us this necessary bulk. An acid fruit puts the best finishing flavor to any meal, especially to a heavy dinner.



This question of what to eat involves a knowledge of the composition of foods, something about our organs of digestion, the fate of the foodstuffs in the body, and the physiologic effects they produce.

There are numerous signs and symptoms by which we may tell whether we are well nourished. Weight is only one indication, and not always the most satisfactory. Improper nourishment may manifest itself in physical inefficiency or habitual gloom.

Children in a nursery school present all types of nutrition, good and bad. There are the nonhungry children, whose disliked food may be mixed with liked food, or who may be given the opportunity of choice and help in the preparation of food in an effort to stimulate their appetites.

A meal is always more attractive if there is a harmonious combination of color, texture, form

and flavor. It is an aid to digestion to have the table set correctly and to share the meal with pleasant companions who add spice to the occasion with their cheerful conversation and quiet laughter. Children should not play just before eating. After hands and faces have been washed let them lie on the floor and rest for five or ten minutes. Quarreling and fussing should never be a part of the meal.

To maintain health the living mechanism of the body must be cared for so as to keep it in good running order, and it must be protected from attacks of its enemies, the disease germs. How much better to use food than medicine to prevent or cure disease. But we must be on the lookout for exaggerated claims made by some producers and distributors of foods who have learned the appeal of health suggestions.

Milk, plenty of fresh fruits and vegetables, exercise and sunshine may be depended upon to keep us well if we are already in good health. If we are not, let us first consult a reliable physician. The medical profession is becoming more and more awake to the use of food in promoting health. The cosmetician and psychologist will soon be joining the chorus and assuring us that the right use of food is the road to health, beauty and power.

Three Fourths of United States in Ragweed Area

THE great basin of the Mississippi River is the world's greatest ragweed district. This is the conclusion of Dr. O. C. Durham, who reported in *The Journal* of the American Medical Association the results of a national pollen survey made during the 1929 season with the cooperation of the U. S. Weather Bureau.

In twenty-eight cities representing all the climates and the varied types of soil in the United States, petrolatum-covered slides were exposed at the local weather bureaus. These were changed every day and each week the slides were shipped to Dr. Durham, who personally made all the pollen counts.

Dwarf ragweed.

No record was made of pollens other than ragweed, but the study proved that ragweed pollen constitutes 98 per cent of the atmospheric load during August and September in the stations east of the Mississippi, and even in western regions it is the predominating source of trouble for hay-fever sufferers. Of several varieties of ragweed, the common short ragweed is of the most importance. Fully three fourths of the total area of the United States is seriously affected, Dr. Durham found, and this three fourths contains nine tenths of the population.

Four cities in the group investigated have no ragweed season and no ragweed problem: Seattle, Los Angeles, El Paso and Miami, Fla. Of these, Seattle, long famed as a refuge for sufferers from hay-fever, is the only one that has no ragweed at all.

Doubtful honors for the heaviest production of this preeminent allergic nuisance go to the Plains group of cities, which includes: Moorhead, Minn.; Omaha, Neb.; Kansas City, Mo.; Wichita, Kan., and Oklahoma City, Okla. Wichita had the longest season of any of the cities studied, with fifty-nine days. Kansas City has the heaviest pollen count. Omaha was close behind, with Indianapolis and Wichita third and fourth.

Boston appears to have the shortest and lightest ragweed season of any large city east of the Rocky Mountains. Sault Saint Marie, Mich., almost qualifies as a hay-fever resort, so light is its ragweed crop. Dr. Durham said that this might be ascribed to the cold summer there, but the small acreage of land under cultivation offered another explanation.

Ragweed is not fastidious about altitude, the study disclosed. Denver, which is at the western rim of the ragweed district, is equaled only by Kansas City in the variety of its pollens. Boise, included in the same group, was short not only on ragweed pollen but on other kinds as well.

This investigation establishes a more or less definite boundary of the ragweed area. It includes all the portion of the United States east of the Rocky Mountains except southern Florida.

Twelve Health Posters from Brazil

From the office of the Secretary of the Public Health, Bahia, Brazil

BANHAR-SE AO MENOS ... UMA VEZ POR DIA
AGUA FRIA
SECRET. SAUDE E ASSIST. PUB. EST. DA BAHIA
DENTES CARIADOS CAUSAM DOENÇAS
SECRETARIA DE SAUDE E ASSISTENCIA PUBLICA EST. DA BAHIA
VERMES
CHOLERA
DYSENTERIA
TUBERCULOSE
FEBRE TYPHOIDE
DIPHTERIA
O PERIGO DAS MÃOS SUJAS
SECRETARIA DE SAUDE E ASSISTENCIA PUBLICA EST. DA BAHIA.

At least one bath a day
Makes children healthy and gay.

Decayed teeth cause diseases.

Worms, cholera, dysentery, tuberculosis, typhus fever and diphtheria—leave your hands.

CUIDADO COM OS
NITRATO DE PRATA 1%
OLHOS DO RECEM NASCIDO
SECRET. SAUDE E ASSIST. PUB. EST. DA BAHIA
Eu quero leite de mamãe!
SECRET. SAUDE E ASSIST. PUB. EST. DA BAHIA
DORMIR COM A JANELLA ABERTA
SECRET. SAUDE E ASSIST. PUB. EST. DA BAHIA

Take care of the new-born baby's eyes; a 1 per cent solution of silver nitrate.

I want my own mother's milk.

Sleep with an open window; modeled from a Hygeia *poster.*

Scarlet fever, smallpox, measles, meningitis, diphtheria, tuberculosis, influenza, whooping cough and parotitis—transmission of diseases through the respiratory tract.

Diseases transmitted by mosquitoes: malaria, filariasis, yellow fever, leishmaniosis, dengue and leprosy.

Dispensary for the treatment of venereal diseases.

A VACCINA EVITA A VARIOLA
SECRET. SAUDE E ASSIST. PUB. EST. DA BAHIA
O ALCOOL LEVA O INDIVIDUO AO MANICOMIO, AO CARCERE, A MORTE!
SECRET. SAUDE E ASSIST. PUB. EST. DA BAHIA
AS VERMINOSES ROUBAM DO BRASILEIRO A FORTUNA E A SAUDE
SECRET SAUDE E ASSIST. PUB. EST DA BAHIA

Vaccination prevents smallpox.

Overindulgence in alcohol brings men to insane asylums, to jail and to early death!

Infestation with worms robs Brazilians of their fortune and their health.

How Cleveland Guards the Health of Its Children

By Philip L. Riley

IN THE Cleveland public schools those agencies that deal with the health of the children are grouped in one department, the bureau of physical welfare. The present health program as administered by the bureau is one of gradual evolution. At its present stage it is not perfect, but it typifies an ideal for which we are constantly striving. We believe that the conservation and improvement of the health of the school child is an educational responsibility which can be discharged only by the combined effort of many persons. We are certain that the health problems of the day are not solved by periodic physical examination of school children alone, but by the cooperative efforts of those agencies that are remedial and preventive supported by definite, thorough training of the child in sound health knowledge and practice.

83,000 Children Examined in Year

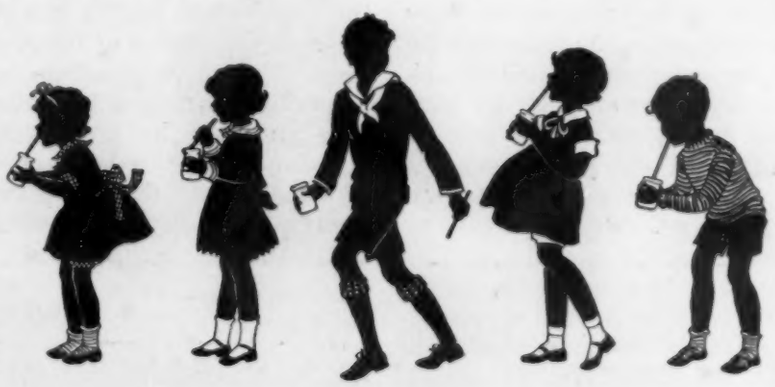
The starting point of our program was, of course, the early work of the doctors and nurses, now organized under the sub-bureau of health service. To them we pay tribute for the services they have rendered. Today, although the program they initiated has spread into many fields, we still find that their work is the firm foundation on which our present structure rests.

The general functions of the sub-bureau of health service are to determine the physical condition of the school children, secure correction of physical defects, and protect the school population from communicable disease. To do this a staff of thirty-six doctors is employed by the board of education. Their services are available three hours daily, from 9 to 12 a. m. During this time the following activities may be carried on:

1. Routine physical examinations—kindergarten, first, third, fifth, sixth grades.
2. Examination of follow-up cases—heart, chest, vision, hearing.
3. Examination of failures, retarded or suspected mental cases.
4. Examination of candidates for open air classes.
5. Special examinations for all those participating in athletics.
6. Examination of all transfers and new entries from outside the school system.
7. Vaccinations against smallpox.
8. Immunizations against diphtheria.
9. Parent consultations regarding physical condition of children.
10. Examination and reference of children to school eye and ear clinics.

During the school year, 1928-1929, nearly 83,000 children were examined. Of these, 75 per cent had one or more physical defects, ranging from teeth, nutrition, tonsils, adenoids, goiter, down to chorea. It is impossible to state how many of the particular defects were corrected, but some 18,000 were corrected. Some 17,700 parents were consulted by the doctors and nurses about the condition of their children.

Aside from the routine duties of the health service, we find some other services that are worthy of particular mention; namely, the audiometer survey and cooperative work with the city health department.



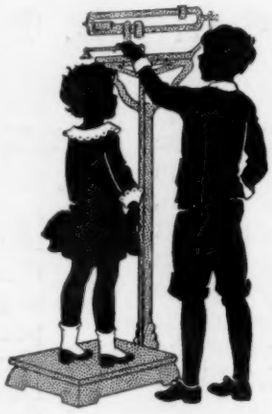
The milk line in a special nutrition class.

Each year an audiometer technician examines pupils of the third grade and those of other grades who have failed or

who are referred because of suspected hearing defects.

Last year, of the 12,500 so examined, 12.3 per cent were found to have some hearing loss of nine or more sensation units in one or both ears. These and others on our follow-up list were referred to a specialist in otology who made thorough examinations of each pupil and recommended further procedures. As a result of this work, 3,100 children were examined. Only 5 per cent of these were found to have such hearing loss that they needed to be referred to special classes in lip-reading.

In an effort to control tuberculosis in the city, the health service of the public schools cooperates with the city health department in following and checking up all contact cases. Each month, the health department sends to the bureau of physical welfare a list of those children in whose families the various health stations have discovered cases of tuberculosis. These lists are referred to the nurse in the school where the child is and at first opportunity the child is examined by the school doctor. Children found suspicious are referred back to the city department health station for more accurate diagnosis and sometimes x-ray examination. Those apparently in good condition are put upon the nurse's follow-up list and are reexamined annually, if not oftener, throughout the remainder of their school life.



When health and arithmetic join hands.

By this check-up, those exposed to tuberculosis in the home are discovered at an early age, carefully watched and instructed. This procedure undoubtedly prevents the occurrence of many cases that would otherwise develop into acute stages before discovery.

While the physical examination of school children reveals the general structure, the examinations and routine work of the school dentists, hygienists and assistants reveals startling information about a specific structure—the teeth—and thereby the nutrition of the community.

Appalling Number Have Bad Teeth

For the last five years nearly every elementary school child has been examined annually by trained dentists and an accurate record of the conditions found has been preserved. In 1909 a similar survey was made, at which time 97 per cent of the children of the public schools were found to have carious teeth. Last year the figure stood at 78.9 per cent.

The seriousness of the situation is reflected in the accompanying table, which shows the condition of the temporary and permanent molars found by the dental workers in children in one school of the city last year.

When in addition to these decayed molars it is known that 49 per cent of all the children have one or more teeth which need extraction because of disease processes, we have indeed a serious situation. We interpret these figures as indicating serious lack of simple dietary knowledge on the part of the general community.

This fact-finding function of the mouth hygiene work is only a small part of the entire program. Corrections of the pit and fissure defects of the first permanent molars are made for children in the kindergarten and first grade of those schools where the twenty-six clinics are located. Hygienists clean teeth of older children and conduct them to hospitals and clinics when dental surgery is necessary. No extractions or fillings or other dental repair work is done in school clinics except as noted above.

Health service points out and alleviates to the extent of its ability the conditions found among the school children. Analysis of these conditions reveals not defects or disease that should be remedied by medical or dental service but those things that are due to an amazing ignorance of the conditions of living which bring them about and how these conditions may be secured and controlled. Defective teeth and malnutrition, for example, may be ascribed to such things as an inadequate diet, overfatigue, presence of physical defects, and many other habits of living.

Realizing that health is not attained by remedial measures alone, the board of education provides definite school time, personnel and equipment to give the educational aspects of health their proper place in its curriculum.

Children Taught Modes of Disease Spread

In the elementary school, a carefully prepared course of study which is concerned not only with the gaining of health knowledge but also with the actual practice of the facts so gained is being used. Such a practice as regular morning inspection conducted by the pupils, under suitable guidance by the teacher, instils habits of cleanliness and aids in checking the incidence of colds and other respiratory infections. In nearly all sixth grades, this is one function of

Grade by half years	K.	1-B	1-A	2-B	2-A	3-B	3-A	4-B	4-A	5-B	5-A	6-B	6-A
Percentage of children with carious temporary molars	85.2	90.0	90.1	85.9	87.2	81.2	74.1	68.7	61.4	50.0	42.3	37.6	17.5
Percentage of children with carious permanent molars	5.8	28.0	48.1	54.6	60.4	45.8	74.0	87.5	68.6	79.4	67.0	78.2	71.9

the health club and serves to emphasize the study of modes of transmission of the common school infections. We lay no stress on the diseases themselves but on how they are spread, from unclean hands, exchange of objects that have been in the mouth, coughing, sneezing, use of towels and tooth brushes.

The regular monthly weighing program as conducted in the upper grades by the pupils themselves is a tangible evidence of the effect of habits of living on growth. It serves to influence the pupils to do things that they would not otherwise do.

Many classes stimulate interest in good food habits by observing the effect of different foods on the growth of white rats. In the upper elementary grades, these experiments are simple, showing such things as effect of milk, tea, coffee or vegetables. In the junior and senior high schools more exact experiments are employed.

Check-Up of Health Habits

The check-up of the health habits that children acquire is confined in the main to those things that can be observed in the school. Such things as cleanliness of person, clothing, possessions; use of drinking fountain, toilet and washrooms; selection of food in cafeteria and other practices that can be checked objectively are recorded by class or teacher. While we do not forbid the use of check lists of habits performed at home, we do feel that their use is not particularly sound psychologically.

Stress is laid each year upon the care of the teeth. In addition to the usual examination by the dentists, many teachers, particularly in the fifth and sixth grades, have developed units of work in hygiene about the teeth. In one school last year among thirteen rooms, six teachers used this and other material with a result that an average of 61 per cent of their children had complete dental service for all their permanent teeth. The figures varied from 53 per cent to 69 per cent. In the seven rooms where these procedures were not used the percentage of completed cases varied from 35 per cent to 56 per cent with an average of 48 per cent. As this difference is not great, it is only fair to state that the entire building carried on an intensive campaign for the improvement of teeth that year.

More than 78 per cent have decayed teeth.

That the lessons in nutrition and ways of living are getting across to the pupils is illustrated by the record of one sixth grade which in the semester, September to January, should have made a theoretical average gain of 2.8 pounds and which made an actual average gain of 4.5 pounds. Whenever definite improvements in health habits have been made there have been as definite improvements in the rate of growth of the children.

In the junior high schools definite organization of the health work among the various departments is possible. Definite health knowledge is centralized in the hygiene and physical education courses, although recent curriculum revision has grouped hygiene and general science together. The other subjects of instruction have incidental contributions to make to the health knowledge of the pupil. Each beginning junior high school pupil passes through the doctor's and nurse's hands, either directly or by reference from principal, hygiene or physical education teacher. As a result of this process in every school of 1,200, about 120 are found who need remedial care or more specific knowledge or attention than they would ordinarily receive. Accordingly, special classes are set up by different departments to adapt the school program to their health problems.

It takes thirty-six doctors to examine the school children.

As has been indicated, the subject of hygiene is now combined with science under the title of "Science, Including Health." In this course of study health is not taught incidentally in the science work but is given a definite place in a program, which is based upon three forty-five-minute periods weekly. The work of each semester in the seventh and eighth grades is divided into major units, the first three of which in the seventh and the first two in the eighth grades are devoted to health. The course itself is designed to be given as a laboratory course in which experiments with plants, animals and the pupils themselves form the basic work upon which a sound health knowledge is built.

The organization of the bureau of physical welfare and of health work in the junior high school indicates that we consider the functions of health and physical education as quite separate. The department of physical education does make definite contributions to the school health program. Not the least of these is the shower bath program which insures each pupil at least one bath weekly.

Thus do we try to make available to every child in the school system an opportunity to improve his physical condition and to follow the trail toward healthful living which will assure better health to the generations of the future.

How Much Should the Patient Be Told?

BEFORE a prudent person invests his money in a business he examines the last annual report of the corporation and the balance sheet. He has a right, which the common law and the stock exchange guarantee, to know something about the business in which he has a share.

In the most important business in the world, the business of one's own health, the matter is of necessity different. The individual does not have the right of scrutiny and information that is granted the investor, who, though he owns but one share of stock, may examine the books of the corporation. The individual, particularly if he is ill, has comparatively few rights. It is well to lay stress on this point, for the sick man is like a corporation that has gone on the rocks, the management and final disposal of which has been turned over by the courts to a referee in bankruptcy. The patient is naturally and rightfully shorn of rights he possessed when he was well.

When we are in good health it is our right and indeed our duty to inquire or to have some trusted member of our family investigate the source and character of our food and drink. But when we take to bed that right and duty cease.

Here is a patient whose condition justifies the prescription of morphine by the attending physician. The directions for the administration are left with the nurse, who is told the nature of the drug and cautioned by the physician about its use. The patient has no right to know what drug he is getting and the nurse, whether she is a member of the family or an outsider, has no right to tell what drug she is giving. In fact, to tell the patient is absolutely wrong as well as contrary to what common sense would dictate. Morphine is a habit-forming narcotic and no patient should know that he is getting such a narcotic. He may like the sensation and seek more of it.

The same thing applies to all data that concern the patient. He has no right ordinarily to know his temperature, his pulse, his blood sugar or other facts. Even if he is a physician himself, his hospital chart is kept from him. He is not independent and self-governing. He is like a backward country whose affairs have been taken over by the marines, a sort of protectorate that has lost its independence but will have its independence restored as soon as it can take care of itself. But there is this important difference. The promise of independence in his case will certainly be fulfilled just as soon as the hospital, the doctor and the nurses can safely let him leave the hospital.

In the case of the sick man the inevitable surrender of independence is logical. He must be freed from responsibility and worry. He must rest completely. The ordinary decisions must be made for him. Only the unusual decision such as whether he shall be operated on or whether he shall go to some distant resort should ever be laid before him. If he is in good hands it will hardly ever be necessary for him to ask for service. His wants will be anticipated. It will not be necessary for him to watch the clock. His most important appointments, the hours for treatments and medicines will be followed, so that he will lose all sense of time and will realize that time is really of relative

A SPIRITUAL ADVENTURE

THE ideal relationship between patient and physician is that of mutual trust of man for man.

There can be no misunderstanding, no suspicion, no misinterpretation, when there is trust.

Under such circumstances an illness, far from being a horrible nightmare, may well be a spiritual adventure of value, a time of freedom from concerns and petty annoyances, a resignation to those trusted medical friends who are one's temporary commanders.

It is a return to the dependence of childhood, when we are nursed as an infant in arms, free from all responsibility, and certain that the hospital, doctors and nurses will look after our interests and will speed our recovery, if that is possible.

duration. He will not be troubled by choices; his menu will be selected for him. How trying and fatiguing it is to order a meal from a long hotel or transatlantic menu! Has not every one sometime put that responsibility on some one else in the party? The patient's menu is arranged for him, with possibly one discreet question from his nurse. Only the wilful and obstinate will object to the surrender of their independence when they are ill. They will be the losers because surrender is reasonable and just.

By Richard E. Stifel

There are times in illness when the foregoing is somewhat altered. It may be well for the patient to know definitely the significance and methods of exact determinations. In certain stages of tuberculosis he may take and keep a record of his temperature. In diabetes he may test his urine and record his findings and adjust his diet thereto reporting all marked variations to his physician. But if he has high blood pressure or low blood pressure he should not get the pernicious habit of taking his blood pressure or of having some one else do it for him. He cannot possibly do himself good and he may well do himself harm, if he does not wreck the serenity of the family.

The good patient, and he is the one who has by far the best chance of recovery, is he who obeys his medical adviser, seeks from him and not from his neighbors or from books in the library whose terms he does not understand the answer to his questions. He does not scamper surreptitiously to other doctors to see whether they will unbeknown tell him what his own physician has already told him. They will likely tell him the same essential facts but if they do not use the exact scientific words and phrases his assurance will be gone and his suspicions strengthened. Confidence in one's physician is almost as important as confidence in one's confessor or in wife or husband.

One must not gain the impression, however, that the good patient is a mere dummy, a sort of child whose inquiries are met by the stupid parental reply, "Don't ask so many questions." The patient has a right to know whether his illness is serious or not, whether it will lay him up a week or a month, whether it will improve or stay about as it is. In most cases he has the right to know the name of his disease. If it is permanent paralysis he has the right to know that. If the disease is incurable he has the right to know that, and he also has the right to know that most incurable diseases have periods of remission. He cannot justly be denied that hope.

It is usually easy to answer honestly the question, "Doctor, have I cancer?" because on the one hand the answer is in most cases "No," the fear being false, and because on the other hand the question is so often not even thought of when cancer is present.

When cancer is present and the question is asked the conscience of the family should determine the answer. The physician will wisely sidestep the issue and put the responsibility on the husband, the wife or the mother, remembering that with the best diagnostic paraphernalia and with the most talented medical experts the mistake has not infrequently been made of calling a disease malignant which subsequent years and events did not verify. Would it have been right to tell these patients they had cancer? It was honestly believed that was what they had.

No general rule can be formulated in these cases. The physician and the patient's family must decide for themselves, for the circumstances in no two cases are alike.

So far we have considered the sick patient. What about those of us who are well? What should we be told after we have had a general check-up by our medical adviser? The liberal who believes in liberty to the nth degree, just as far as it is compatible with a habitable globe; will undoubtedly exclaim, "Everything; tell us everything." But everything cannot be told without some caution, because technical facts and figures may mislead.

Here is a young man disturbed by a urinary report that notes the finding of many epithelial cells, which sounds grave to him. A woman of 30 is worried by her blood pressure. The slip says it is 120; she heard from her grandfather that it should always equal 100 plus the age. According to this rule it is 10 points too low. A teacher in the high school is concerned about his pulse; it averages about 62. He states it should be 72. He has consulted a half dozen physicians who have taken tracings and x-rays and have made exercise tests and have always disappointed him by reporting his heart normal. It would have been well if this man had never got the obsession of the figure 72.

Medical students are perhaps the oftenest misled. No one can study medicine without sometimes imagining that he is afflicted with some of the diseases of which he reads or of which he is told. When the medical man is older and more experienced he does not make diagnoses on himself; he puts himself in the hands of a fellow physician and when he is told "Your lungs are all right, old man," the matter is settled and closed. He does not demand a minute report of the various tests. He knows he is in the hands of a friend who will not deceive him, a friend who has only his interest at heart. And he is satisfied to trust that friend, knowing well that if there were any doubt in that friend's mind he would call for other opinions and other examinations.

And Now for

TO CLEANSE AND COOL FOLLOWING GYM CLASS

IS A shower bath after an exercise or a gymnasium period necessary? How old should school children be before showers are made a part of their play program? What benefits follow the shower properly taken? What is a good plan for shower building in our schools? I shall attempt to answer these questions as simply as possible in this article.

Exercise, play and recreation are essential to normal growth and development. It is through physical achievement and joy and satisfaction in activity that satisfactory health habits and concepts are best motivated. Play provides important devices for the development of leadership. Games permit a satisfactory use for leisure time and recreation.

If complete fulfilment of the best potentialities of the individual is our ultimate goal—with health and organic vigor as our first objective—then any adjustment of the school curriculum that leads to its accomplishment is indicated.

Up to the seventh grade it seems inadvisable as well as impractical to consider the shower as essential in the physical education program. There are, however, undoubtedly situations in which shower training would be indicated for the motivation of habits of cleanliness.

It seems inadvisable to encourage a shower system until about the seventh grade, because a great part of the younger child's day should properly be given over to play, exercise and recreation periods to meet the well recognized demands of growth and development. It is unwise as well as impossible to assume either that a shower is indicated or suitable following any particular play period. The best hygiene of the play period should emphasize intelligent leadership, frequent, well placed play periods in the sunlight and air, with attention paid to the suitable clothing of the body during and after the play session. During these periods there should be sufficient time to effect individual adjustments to suit the physiologic and psychologic needs of each child.

The shower following exercise plays a dual rôle. It serves to cleanse the body surface of

A shower system is inadvisable until pupils reach about the seventh grade.

a Shower!

By

Margaret Bell

the secretions of the skin glands and it removes the extraneous dirt that clings to the moist skin. With cleansing as the objective, the first few minutes of the postexercise shower should be taken with the water at body temperature. Plenty of soap should be used to dissolve the fatty secretions of the sebaceous glands. During this first part of the shower, the body temperature will remain unchanged, or as high as it has been driven by the intensity of the activity.

To appreciate the effects of the shower one must have some idea of the physiologic changes that take place in the body as a result of activity. Strenuous exercise increases the speed of all the normal physiologic processes. The metabolic rate—that rate at which the body tears down and builds up its tissues—is raised. In sleep or in rest metabolism is lowest, or basal. It is, therefore, lowest when the body is exerting itself the least to survive, when breathing is slow, when the heart is beating at a low rate, when digestion is at a low ebb and the muscles are relaxed. After rest, as body activity increases and more and more energy is required the metabolic rate rises. The sugars (glycogen) stored in the body are oxidized. In the average adult woman of about 125 pounds the basal metabolic rate is about 1,500 calories. A calory is a heat unit and the energy expended in the bodily processes is calculated in heat units. The various food elements—fat, sugars and protein—provide when burned or oxidized in the body heat units in the following proportion: protein, 2,000 calories per pound; sugars and starches, 2,000 calories per pound, and fat, 4,500 calories per pound.

This resting, or basal, caloric requirement of the individual rises with increased activity. The adult woman of 125 pounds at rest in bed requires about 1,500 calories; awake, eating and reading in bed, 1,800 calories; sitting up and sewing, a little more; clerking, 2,200 calories; an average athletic college girl, 3,000 calories; a girl in camp hiking, swimming, riding, 3,500 calories, and on up to such strenuous sports as football, in which 8,500 calories are used.

Drying should be thorough and dressing should be leisurely.

The second part of the shower should be taken with cooler and cooler water, until the spray is cold. The surface blood vessels have been dilated during exercise by the heat-regulating mechanism of the body in an attempt to cool off the blood and to keep the body at a stable temperature.

Now in the cold water shower the blood in great quantity is exposed to the cooling water. The cooler blood circulates throughout the body and gradually an adjustment of all physiologic processes back toward the normal slower metabolic rate occurs. The surface vessels contract. The body temperature drops. The heart rate decreases, blood pressure becomes lower, secretions decrease and muscle repair sets in. A wave of relaxation passes over the body, followed by the sensation of well being.

Dressing Should Be Leisurely

The drying process should be thorough. It is important that the hair be dried well before going out into a cooler temperature. The dressing process should be leisurely. With these precautions, cold showers apparently have a tendency to increase the immunity to respiratory infections.

At this stage, you may be inclined to remark: "This physical education proposition seems to be a rather serious time-consuming process." The better question would be, "Is the physical education program functioning to best advantage or are we defeating our educational objectives in the way that it is administered in our schools?"

It is well known that the physical education period is thrown into the day's program often without thought of its immediate effect on the pupil or on his complete day's class schedule.

After vigorous exercise, the pupil comes in in a sweat, with vessels dilated and body temperature raised. Mentally he is stimulated and restless. The first requisite of this period is adequate big muscle activity and satisfactory play. The second requisite is the use of the shower bath to convince the pupil of all those essentials of well being that should be coordinated with this stimulus. He must have his shower, first at a cleansing temperature to wash the secretions and odors from his body's surface, and then at a cooler temperature to readjust the circulation and contract the surface vessels, to cool off the blood and body temperature and to slow down the metabolic rate.

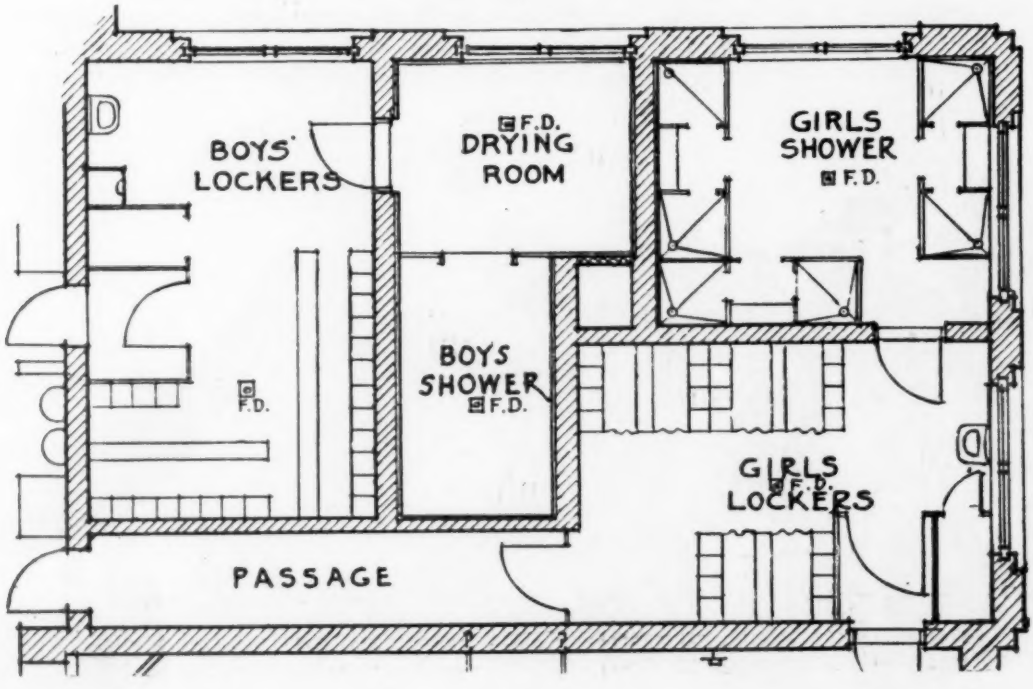
The whole process of cleansing, cooling and slowing down the metabolic rate will quiet the pupil's mental attitude, put him in a comfortable, satisfied, responsive state of mind, and increase his immunity to infection.

The time element throughout this exercise-shower period is one of the utmost importance. There is a general tendency through the school systems to hurry through these periods with the ultimate result that the hours following the exercise period are the least productive in the day. There should be no rush in this connection. The child should feel relaxed from first to last. He should be conscious of that feeling of well being that comes with suitable exercise.

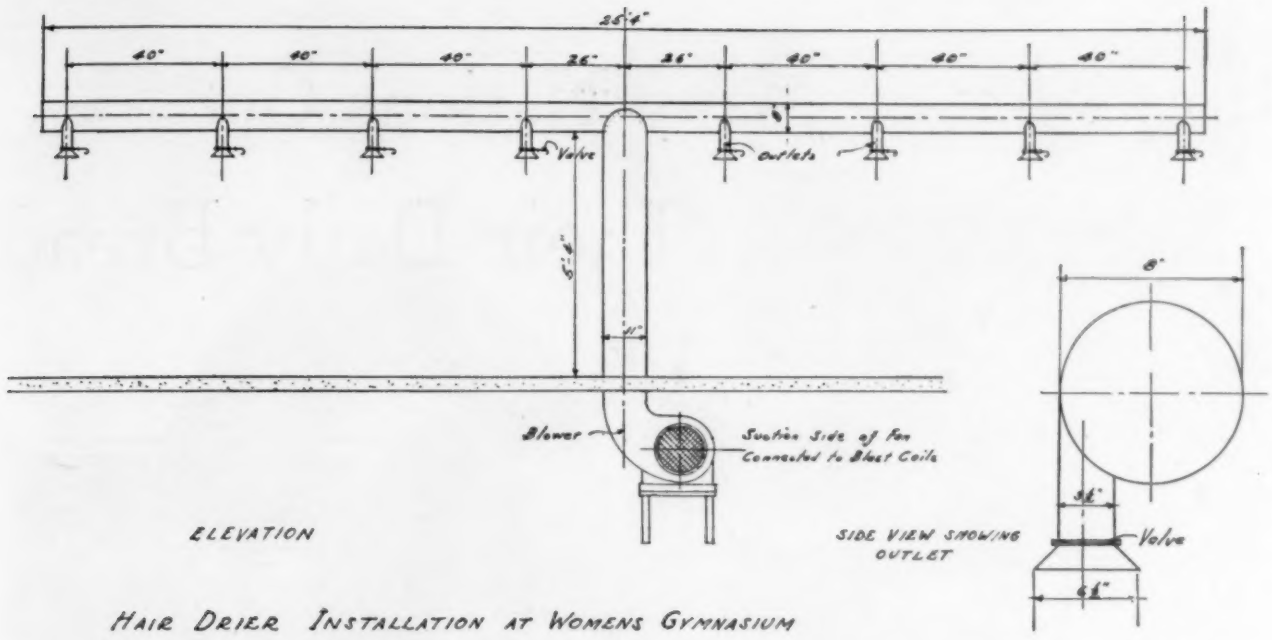
Best Time of Day for Exercise Periods

Then, since this activity period is only a part of the whole program, at what time of the day can it function most adequately?

Experience seems to indicate that the best possible hour for directed activity would be before the lunch hour or in the late afternoon hours before the supper hour. It would be con-



A plan for shower and locker rooms, a part of a health unit in one of the Detroit public schools.



HAIR DRIER INSTALLATION AT WOMENS GYMNASIUM
STATE UNIVERSITY OF IOWA

It is important that the hair should be dried thoroughly in winter before the pupil goes out into the cooler temperature.

structive to work out more accurately the effects of periods of exercise preceding periods of concentration in the various school subjects. It is a simple matter to stimulate discussion on this point.

High school instructors are wont to argue the advantages and the disadvantages of periods of activity preceding their classroom work. It is not at all impossible to conceive of varied states of mental receptivity following different degrees and kinds of activity. Lethargy and fatigue necessarily follow exhausting physical exertion. Excitement and boisterousness follow unrestricted activity. Other attitudes still follow periods of physical achievement and adequate physiologic stimulus, so it would seem that this matter should be taken into consideration in program planning.

It is desirable that the child in the classroom be comfortable, fresh, alert and interested.

Set-Up for Dressing Room

A satisfactory plan for meeting the demand for a shower system follows:

It is necessary to have a hygienic space for storing suits, shoes, soap and towel. Therefore, a room arranged either to a bag or basket system is the first requirement. This whole set-up should be in charge of a matron. There should be a division between the boys' and girls' quarters.

It is well to arrange a group system in which the leader of a group is responsible for the distribution of bags from the central storeroom. The leader then comes to his group distributed in a definite section of the bigger dressing room and distributes the bags. Each member changes his clothing and hangs his clothes on a hook and then goes to the gymnasium, a drinking fountain and toilets being available. After the exercise period, the pupil returns, procures his towel from the matron's desk, picks up his soap and goes to the shower room.

Group or Individual Showers

There are several good plans for the arrangement of the shower room. One is a runway shower, narrow and long, in which the water is running—warm at entrance and cold at the exit—with shower heads shoulder height against the sides of the walls, the sprays crossing and full from about shoulder height down. This room should be large enough to permit a good sized group to scrub off thoroughly.

A second type is the more familiar individual shower. The desired number of individual shower heads may be placed in one large shower room. This type of shower should be equipped with an automatic regulator that prevents the hot water from reaching too high a temperature. The shower head is set at shoulder height. Each child learns to regulate his shower properly.

If the individual showers are set in a series of individual booths, it is well to have the walls as low as possible. The wall should begin at the floor, preferably with the shower floor sunken. Care must be given to the proper drainage of the aisles between showers to prevent the accidents that come with slipping and to prevent the accumulation of slime and dirt that come with persistent moisture.

It is well to prevent from the first epidemics of ringworm of the feet by encouraging the use of sabots, or wooden sandals.

How Men of Many Nations Get Their Daily Bread

"Arab Girl Delivering Bread," a painting by Estienne in the Salon de Paris.

"The Cookie Vender of Bayonne," a painting by Pascau, Bayonne Museum, France.

Baking Swedish bread in Västergötland, Sweden.

All photos by William Thompson

At the sign of the baker, Reval, Esthonia.

A bread merchant at Tunisia.

Bread market at Alexandria, Egypt.

All photos by William Thompson

The Tempting *but*

People Used to Call It "Pretty but Poisonous"

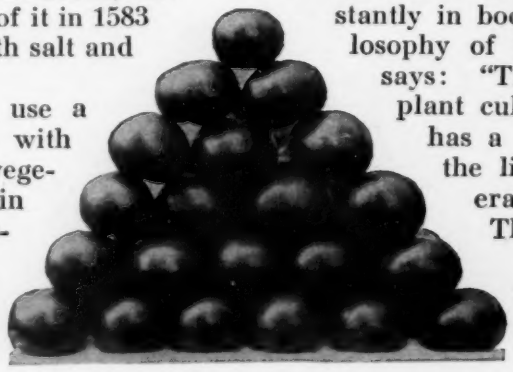
IT'S a long stone's throw from the first tomato grown in Peru to the many and perfect specimens in our markets today. He who would discover them all and catalogue them must needs write a treatise on geography. Like many other good things, such as chocolate, Indian corn, turkey and the canvas-back duck, the tomato first saw the light of day in our new world, it being native to South America. It was cultivated in Peru for ornamental purposes only because of the brilliant color of its fruit many centuries before the advent of the Spanish.

The Spanish were probably the first to use it as a food. They took it back to Spain with them about 1583. It reached Italy and France in 1596. Its esculent use began in southern Europe long before northern Europe accepted it as a food. By the end of the sixteenth century several varieties had arrived in England. Gerard, botanist and surgeon, speaks of it in his history of plants in 1594. He introduced it into his garden as an exotic plant but did not use it as a food.

In the early, romantic days of its career the tomato was known as the love-apple, because of its supposed aphrodisiac qualities. The present name is of uncertain origin, though the majority of authorities concede it to be Spanish. The Spanish gave it the name "tomaté," the Mexicans "tomatle," while the English called it "tomata" until some time after 1800. The present name has been in use in this country less than a hundred years.

Comments on the tomato are to be found in literature as early as 1572, the first mention being of "ninety Americanorum tumatles" in Guillandinus' De Papyra. Dodoens, the Netherland herbalist, speaks of it in 1583 as a vegetable to be eaten with salt and pepper.

The tomato has been in use a short time in comparison with many of our other common vegetables. The onion was used in large quantities by the laborers who built the Pyramids. Even broccoli is not a new vegetable, its use having been mentioned in books on cookery several centuries ago. But the tomato is not mentioned in many cookery books before 1800. Grismod de la Reyniere gave one recipe for it in his Almanach des Gourmands, 1803. Dumas, the high priest of the kitchen, repeated Reyniere's recipe in his Grand Dictionnaire de Cuisine published in 1873. That is the only use given for the tomato by the great Alexandre in his all-inclusive book of 1,155 pages in which he discusses the cooking of everything from kangaroo steak to elephant hoofs. During the French revolution some soldiers from Marseilles brought the tomato to Paris but it has never achieved great popularity among the world's gourmets. Its large consumption in the Midi is the result of Italian influence on cookery. The French are probably responsible for tomato soup. One of the first published recipes for this dish appeared in Le Cuisinier Imperial, 1867, by Viart.



The Americans long regarded the tomato with suspicion. Its popular acceptance has been slow in arriving. It has not been used generally as a food in this country much more than seventy-five years. It was known to the majority as a curiosity as late as 1830. In his Young Housekeeper, 1838, Dr. William Alcott says: "No one regards it as nutritious since it belongs, like the mushroom and potato, to a family of plants, some individuals of which are extremely poisonous. Some persons are even injured, more or less, by the acid of the tomato." Even Emerson, in his English Travels, 1856, found the sea life an acquired taste "like that for tomatoes."

After the Civil War the tomato gradually assumed a more important place on the American table. New uses for it appeared constantly in books on cookery. In his Philosophy of Housekeeping, 1867, Lyman says: "There is no more wholesome plant cultivated than the tomato. It has a direct but mild action upon the liver and aids digestion generally."

The development of the tomato in this country is due mainly to the care of the plant breeders. They have improved its form and

Tardy TOMATO

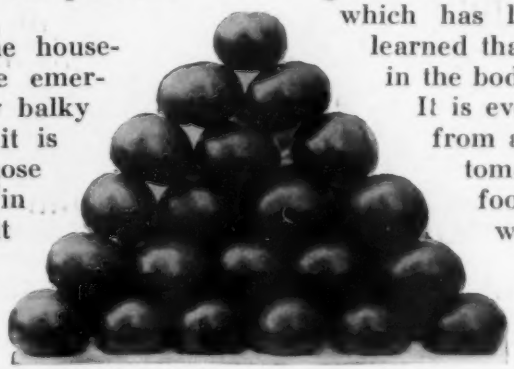
By Marguerite Gauger

flavor, have eliminated the wrinkles from it, and have removed most of the seeds. It now comes in many sizes. Not until the middle of the nineteenth century was there any decided change in the form of the tomato. A group of varieties originated during the closing quarter of the century, including some of the most important commercial varieties.

The vicissitudes of the tomato plant are the chief concern of a veritable army of scientists who keep the government printing presses busy with learned dissertations on its cultivation and diseases. These students of the plant have disputes over everything from the "sleepy" disease of the tomato to the structure of its skin. Instead of arteriosclerosis the tomato has bacteriosis.

Praise is also due the canners of this country who are partly responsible for the increased consumption of the tomato. With the development of the lacquered can and the perfecting of factory methods of canning, there has come a far greater use of the commercially canned tomato. It is now the most widely used canned vegetable in this country. The total pack in 1927 was 13,127,042 cases, each containing twenty-four No. 3 cans. There were also many gallons canned in the homes, no estimates of which are obtainable. The United States is now the greatest per capita consumer of tomatoes in the world. Next in order are Italy, Spain and Mexico. Tomatoes rank second to potatoes as a truck crop, fresh ones being available now the entire year. They are in season from July to November. The winter demand is supplied by the southern states, the West Indies and the local hot-houses, the latter crop having increased more than 500 per cent in the past few years.

The tomato stimulates the housewifely imagination in those emergencies when her wits grow balky about planning meals and it is most acceptable to those whose happiness rarely consists in "more of the same," since it might easily provide a new dish or a new combination for every day in the year. It is a relief in certain diseases. It does not contribute to obesity, and for this reason is greatly prized by all those who would be thin and yet do not wish to rob the body of its vital elements. Present-day Magellans need have no fear of scurvy among the ship's crew as long as the supply of canned tomatoes holds out. Rear Admiral Byrd and his crew no doubt used many of them in the Antarctic.



The scurvy flew through the schooner's crew
As they sailed the Arctic seas.
They were far from land and their food was canned,
So they got no vitamin C.
For "what's the use of tomato juice?"
The skipper 'ad said, said he.
They were victualled with pickled pork, my dears,
Those mariners bold and free.
Yet life's but brief on the best corned beef
If you don't get vitamin C.

From infancy to old age the tomato is a good food. It is rich in mineral salts and vitamins A and B. It is recognized as one of the most important sources of vitamin C and it ranks with oranges and lemons in this respect. The vitamin C in the tomato is resistant to heat, a characteristic shared by few other foods, and so the tomato is equally valuable raw or canned. It is our most versatile vegetable, both as regards flavor and contribution to health. It may be used as a cocktail, hors-d'oeuvre, soup, entrée, or salad, as a breakfast fruit, or just alone (our grandmothers ate it raw with sugar and vinegar but the younger generation likes it with salt and oil).

The tomato, canned or raw, may be eaten by any healthy adult. Babies under 1 year are given strained juice to supplement the milk, which has little vitamin C. Since we learned that the tomato is base-forming in the body no one fears the acid of it. It is even given to those who suffer from an acid condition. When the tomato first came to be used as a food in this country, the acid was thought bad; hence it was used with sugar. Raw and canned, it was served with liberal amounts of sugar and thus the fine flavor of

it was lost. In those days there was no such thing as a fresh tomato after frost. So it was made into pickles, relishes, preserves, honey and tomato figs. The latter were made from the small pear-shaped yellow tomatoes. The cook books of Sarah Tyson Rorer and Marian Harland of the 80's and 90's contain many recipes for preservation of the tomato.

The present generation scorns sugar on tomatoes, and rightly so. Their flavor is excellent, in combination or alone. Many new uses have been given it. One inn in New York state makes a specialty in August of escalloped corn and tomatoes. This is made with alternating layers of fresh corn and tomatoes, seasoning, and butter. Crumbs cover the top. This is cooked in a hot oven from 45 to 60 minutes. It is a delicious combination, and it can be made from canned products.

Juice as Breakfast Dish or Cocktail

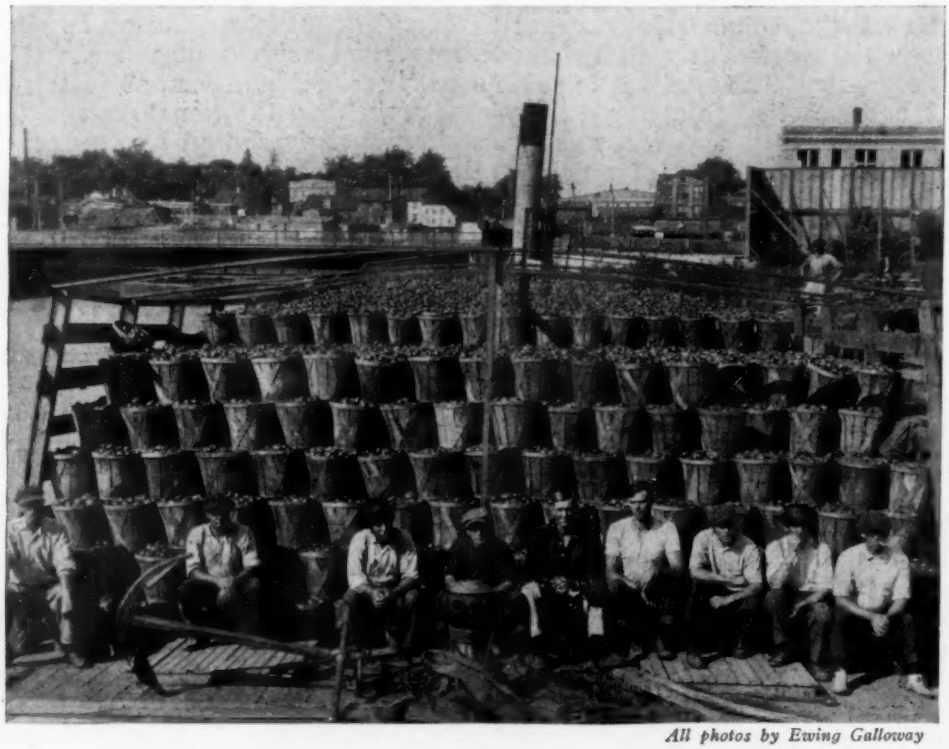
Aside from the flavor, its color is a decided asset. Its rich red forms a garnish on a dish of cold cuts, on toasted sandwiches, salads, or appetizers. A thin round of bread, buttered, spread with caviar, and topped with a thin slice of tomato gives any one an appetite. The red tomato is attractive in a drink, which can be used, unseasoned, for breakfast or, seasoned, before dinner. The juice should include some of the pulp to give it proper color. The markets now have several good canned juices, which are inexpensive.

Yellow Tomatoes Not Sold Commercially

Not to be forgotten is the yellow tomato which many amateur gardeners raise. Some varieties, such as the ponderosa, are large and free from seeds. Their flavor is the same as the red product and the color lends variety. They are not sold commercially in large cities since the average consumer prefers the red color in his tomato.

In no place is the red color more effective or appetizing than in soup, either in a stock soup or in a creamed one. Tomato soup is the most popular soup in this country today. The canned product has a much wider sale than any other variety, for several reasons; among them flavor, cheapness and convenience. It takes only a moment to open a can of tomatoes or of the soup and to heat it. The creamed soup is nearly as simple; a small amount of soda is added to the tomatoes to neutralize the acid and milk and seasoning are added.

Blessed be the Spanish who rescued the tomato from a life of obscurity and gave it to us. As Elizabeth Robbins Pennell says: "Cook it or serve it as you will; see that it is eaten by you and yours—that is the main thing."



All photos by Ewing Galloway

A barge load of tomatoes from the truck farms of Delaware Bay.

Physical Defects *and* Character

By Thurman B. Rice

IV. Deafness

THE landlady's kitchen was directly beneath our room. Bang would go a dishpan; Slam, the door; Crash, the dishes. Never so noisy a woman and seldom so cranky a one! Suspicious, resentful and touchy, she made life miserable for us and for her long-suffering husband. Is it a coincidence that she was also quite deaf? Well, we hardly think so.

It happens so often that deaf persons become eccentric and solitary. I well remember a neighbor of my childhood days who could hardly hear it thunder. On Hallowe'en his place was a rendezvous for all the young blades of the community for the good and sufficient reason that he was sure to get in a rage and fire his trusty shotgun in every direction except the one in which the boys were. The poor old fellow was wont to go about muttering to himself little supposing, being so deaf himself, that others could hear his words quite plainly. When spoken to he would squint his face, hold his hand to his ear and shout, "Eh?" Under the circumstances it is not surprising that he often saw a smile of amusement on the face of his neighbors; nor is it surprising that he should resent the same. However that may be, it was common practice for folk to make fun of Uncle Joel and for Uncle Joel to draw further and further into his shell.

Does Not Know He Is Annoying

Here is a clumsy boy who comes clumping into the schoolroom; he slams down his books and sits on the edge of his seat until it comes down with a crash. He seems not to be doing it to be annoying but rather because he is unaware of the noise he is making. Very likely he has no idea that noise is so annoying, because he can scarcely hear well enough to be bothered by it. It will be well to have his ears examined and to look for a mass of adenoid tissue in the back of his throat at the place where the tubes from the ear open. Perhaps the hearing has not been permanently injured but may become so if the cause of the trouble is not removed.

Those of us with good ears go to an important meeting and have to sit far back in the auditorium. The distinguished speaker of the evening has a message that we are anxious to hear and so we sit leaning forward, all attention, straining to hear every word. But such a position and such effort are tiresome and after a time we begin to ease back into our chair and consequently to miss a word now and then. After a little, we are getting but part of the meaning and, finally, none of it. Until this time we have been highly intolerant of the persons back of us who have been talking, but now we find ourselves whispering to our friends near us. Ten minutes later we are seen slipping out as quietly as possible or openly carrying on a conversation. If there is anything to read under such circumstances it is a godsend.

The deaf person is in exactly such a position a large part of the time and soon gets the reputation of being inattentive and disrespectful. Rather than step out he prefers to stay at home, read his own books and think his own thoughts.

Why the Deafened Are Sensitive

A bevy of friends are engaged in sprightly conversation a few feet away. No attention is paid to the clatter they are making until my own name is spoken.

"What's that you are saying about me?" I ask.

"Oh, nothing at all; you shouldn't know everything," they assure me. But the evening is spoiled. I wonder what they were saying. If it was complimentary I should like to know it; if uncomplimentary, I am even more anxious. Why would they be talking about me when I was not present? How aggravating to catch but a word! How provoking to see a bunch huddled together talking in low tones! How embarrassing not to get a name and to have to ask! How devastating to be called on for a word or an answer and to go ahead as if nothing had happened while every one gets quiet awaiting my rejoinder! Well, this is the position that the deaf person finds himself in a large part of

the time, and he doesn't like it any better than I would. As a result he doesn't like to mingle with folk.

The deaf child hears a question that he can answer. He doesn't hear another child respond and when the teacher asks him the next question he answers the first. Of course, the children laugh and the teacher as likely as not asks him if he has been asleep. When the lesson is assigned he is not quite sure what it is and has missed entirely the little extra assignment outside of the text. Consequently, he is not prepared to recite at the next period and does poorly. One would suppose that he would realize that he is deaf, but in the case of a school child this is rarely the case. He just supposes that the teacher and the others speak in provokingly low voices and that the others have as much difficulty as he. Every one else believes that he is stupid, and he finally comes to believe it himself.

The attempts of a deaf person to appear interested and up to the minute are painful to watch. I have in mind a talented woman who crowds into the very midst of the company and closely watches the face and lips of every speaker, turning instantly to the next speaker and unconsciously wearing a look of anxiety. She rarely dares a comment or a repartee, though at the typewriter she is far more than the equal of her companions. Sometimes her friends will halt when half through a narrative, raise their voices and repeat the story for her benefit—but it's pretty hard to tell a snappy joke in a high-pitched, unnatural voice. To be sure, this is embarrassing to my friend who wishes to appear like other folk.

It is entirely possible that the deaf person may miss many excellent opportunities because he has not gained a piece of information which one with normal hearing would certainly have understood, but that is not the point. The real tragedy of deafness is to be found in the fact that the person gets into ways of protecting himself against his defect and develops various disfiguring habits. He raises his voice to a high pitch; he holds his hand to his ear; he crowds into the face of those speaking to him; he raises a petulant "Eh?" at the most provoking times. He draws into himself and becomes selfish, or cranky or eccentric; he is suspicious and tyrannical or overly self-conscious, fearing to express himself lest he should get things wrong.

Parents Have Heavy Responsibility

Parents of a child with poor hearing or potentially poor hearing have a heavy responsibility. The acquisition of defective hearing is a serious matter in those who are already mature, but even more disastrous to the developing child. Throat infections, adenoids, middle ear infections, running ears, chronic mastoids and related conditions call for the best available medical or surgical attention before damage has been done to the most delicate organ in the body, the ear. The old time horror, "a gathering in the head," is now easily recognized and as easily relieved. It is nothing more than a middle ear full of pus, easily detectable by the physician, who makes a routine procedure of looking into children's and babies' ears. Having found the red and bulging ear drum, it is infinitely better to open it with a quick thrust of the lance than for the parent to walk the floor for two or three nights trying to sooth a baby that cannot be soothed. Any fear that the lance may injure the hearing should be replaced by the far greater fear that the entire ear drum may be destroyed and that the mastoid area may become involved if the "gathering" is allowed to take its own course.

In case a child has already become permanently crippled in his hearing, the parents are faced with another type of problem. The child must be constantly watched so that he may not develop the various bad habits that have been mentioned. If necessary, he may be cautioned directly about them, but it will be better if his attention is not too often called to his inferiority. The parents should see the teacher and arrange, without the knowledge of the child, for a seat near the front. Clear, sharp enunciation in the conversation of the home should be cultivated. If the lips are much used in speaking the child will learn to supplement his hearing in this manner. Thoughtfulness in seating at the table and in the living room will often help greatly to put the child at ease.

Choosing a Vocation

Finally, there is the matter of a profession for the child who does not hear well. In some lines such a person will be seriously handicapped. As a physician, a teacher, a lawyer, a salesman or a clerk the deaf person will be at a disadvantage, but in certain other lines the misfortune is not great. Thomas Edison is easily one of the few really great men of his time and yet he is decidedly deaf and has been so for a long time. He, indeed, considers his deafness as a blessing in many respects, because it shuts out distractions which might disturb the remarkable concentration for which he is noted and to which he owes a great part of his success. In certain lines of work he would probably have been a miserable failure.

Hearing is second only to sight as a means of receiving information about the outside world. Abnormality of such an important organ will certainly lead to serious deviations in the character development of the growing child unless great care is taken. Unfortunately, much less can be done to correct abnormal hearing than is easily accomplished in regard to defective vision. For this reason injury to the ears must be most carefully avoided.

The TOLLIVERS LEAVE TOWN

By
Esther A. Canter

"Mr. Tolliver traded the children's Belgian hare and $15 for a car."

"HAVE you heard the latest?" exclaimed Mary Johnson of school No. 6.

"If it's anything exciting, I am ready for it," yawned Sue Gibbs, a fellow teacher.

"Well, our awful Tollivers are leaving town. They are going back where they 'cum from'—the mountains of Tennessee."

"Hurray!" shouted Sue. "We will not sob over that. I was never as tired of anything as I am of trying to get Buster to come to school clean. I have sent him out, morning after morning, to wash his face and hands. When he comes back into the room, he looks as if he were in the last stages of tuberculosis, for he leaves such dark circles around his eyes. I usually have to finish the job myself." As an afterthought, she added, "Still he is rather lovable. He has the sweetest smile and will almost break his neck to do me a favor."

Said Mary thoughtfully after a moment, "I wonder if they are financially able to make that trip. I know they have not had money for books, and the children come to school so shabbily dressed. Besides, there is such a large family of them."

A sudden idea came into Sue's head, "Say, what do you think of asking Miss Smith to take us over to their home this evening? Perhaps we can give them some kind of assistance."

"Fine!" exclaimed Mary. "Here she comes now. I am going to ask her before we lose our nerve. Miss Smith," she called to the school nurse, who was just entering the building, "Mary and I have just been discussing the departure of the Tollivers. We are tickled to death that they are going. Yet, we are wondering if they will need anything. You have told us so much about them we are interested. Would you think it a lot of nerve if we asked you to take us over?"

"I think it is a lovely idea," returned Miss Smith. "I wish more teachers would think about the homes of some of these little ragamuffins. It would be easier for the teacher and child both. I heard a social worker say today that the Tollivers were leaving tomorrow morning. So we shall have to go this evening, if at all."

"We shall be ready at 4 o'clock," they replied enthusiastically.

"But let me warn you that you may feel the need of a gas mask when you enter. You probably never will again smell a smell that smells as that smell smells," she chuckled, "but that's all right; I shall have my spirits of ammonia right with me in case either of you swoons. But I must hurry. I have a long list of calls to make today. If measles does not stop its ravagings soon, I shall be leaving for parts unknown. Will see you at 4 o'clock." With this, Miss Smith hurried to make her next call.

Several hours later, both teachers were standing outside the building, eagerly watching for the nurse's car. A cold March wind was blowing, and the girls were shivering in spite of their fur coats. "What is keeping her? If she doesn't come soon, I shall be too stiff to climb into the car," complained Sue.

"Oh, cheer up, Old Dear," encouraged her partner, "I see the familiar bus coming around the corner now."

The little mud-splattered vehicle slowed up at the curb, and Miss Smith opened the door for them to enter. "So you were really in earnest? I was afraid you would back down at the last minute, but I misjudged you. Well, here goes the chariot to take you to Fairyland," she laughed.

Miss Smith seemed to get a great deal out of living. One could not call her beautiful; in fact, she seemed quite weather-beaten at times, but that did not bother her. She couldn't find time to worry much about the kind of face she had; her life was filled with larger interests.

"Well, girls," she began, "I have found out something about our Tollivers today. They are not leaving per rail. They have a car! Yes, siree! A real car, a Dodge. I think it is Dodge Brothers' first experiment."

"Oh, my word!" cried Sue, "I thought they were poor."

"You will still think so when you see the car," laughed the nurse. "Mr. Tolliver traded the children's Belgian hare and $15 for it. Now, what do you think of that for a business deal? Could you do better yourself?"

"How can it hold up under all that weight? I am dying to see the outfit. It will be my first experience at slumming," responded Sue.

"By the way," warned Miss Smith, "there must be no surprised or shocked expressions shown if you want them to feel that you are friends. I have found that people in their circumstances are really supersensitive. You are merely coming to tell the children 'good-by.' This is their street. Isn't it a nice mud-hole? It is not much wonder that the children always have muddy shoes, is it?"

"Heavens," exclaimed Sue, "I have seen these shacks from the street car, but somehow I never thought of people living in them."

"I suppose the farther down you go the worse the shack, and the Tollivers live in the last one," said Mary laughingly.

"Correct," agreed the nurse. "Haven't you already guessed that the crowd around that car is our Tolliver family?"

"It looks like a crowd around an accident," laughed Mary.

"Still Buster is rather lovable."

"There may be a crowd around an accident before the old rattletrap reaches its destination," said Miss Smith, "but it really is just the family with their sympathetic neighbors. They are talking over the virtues of the car and admiring her lines and bodily features."

The nurse's car stopped in front of the dingy little building. The crowd around the old Dodge turned to stare at the newcomers, who were picking their way through the muddy yard. Miss Smith answered their inquiring expressions by saying, "Mr. Tolliver, I have brought two of the teachers with me this evening. They are interested in your children. Will they have necessary food and clothing?"

"Well, it surely is nice of you-alls," he said, removing his shabby cap, "but I reckon we will make out somehow. I'd kinda like to start tonight. You know, I jist learnt to drive this week, and I'm not quick on traffic."

"Oh, no," objected the nurse, "that would never do. This is a chilly evening; Mrs. Tolliver is not well, and baby Jinnie has just recovered from the measles. That would be a terrible risk." She glanced at the Dodge. "Have you any side curtains for that machine?"

He shook his head, "No'm, we ain't. But we 'lowed as how we could wrap up the kids in the bed clothes."

The girls turned toward the house. Victorie, a dirty-faced, pug-nosed girl of 8, opened the door for them. A look of awe spread over her face, as she beheld her "beautiful Miss Johnsing." She left them standing in the doorway, while she dashed madly to the kitchen to break the news to her mother, "Oh Mammy," she cried, "come quick, we got company—my teacher, the nurse and a woman besides."

Mother, smiling through a mask of soot and ashes, came in wiping her hands on a dirty apron. "Come in," she said hospitably; "Victorie shouldn't have left you standin' up. She ain't a bit perlite. Here, draw up some cheers and set a spell. I've been cleanin' out the old stove and got dust on them." She wiped off the chairs vigorously with the faithful old apron and pushed them forward.

"No, thanks," replied Miss Smith, "we cannot stay long. These ladies are Buster's and Victorie's teachers and have come to see if the children need anything for their journey."

"Yes, that's what worries me. J. C. ain't got a sign of underwear and jist a little ragged old sweater. The kid's most bare and he is subject to phthisic."

While the nurse and Mrs. Tolliver were discussing various problems regarding their needs, Sue and Mary were taking in their surroundings. Why this peculiar odor? It was the same odor that they had noticed on the clothing of these children in school. It might be due to lack of soap, water and fresh air, although it seemed that air had every chance in the world to find its way in. One window pane was out, and an old cushion had been on duty all winter keeping out the bitter winds. None of the doors fitted tightly, and there were evidences of five leaks in the ceiling. The floor was bare and rough, with knot holes covered by bits of tin to keep out rats. The stove door hung by one hinge and ashes had fallen in a heap in front of it.

In another corner was a bed. It was covered with a greasy quilt of "crazy-patch." Three children were sitting on top of the bed listening to the conversation. It mattered not to them that their feet were muddy and their clothes sleek with dirt. Minty May was lapping an all-day sucker, trying at the same time to hold the kitten away from it. The only bright spot in the room was a gaudy kewpie doll, which the children had won at the last county fair. Even some of her splendor had been marred by ashes and dust.

"Did you hear that, girls?" asked Miss Smith. "They have only twelve dollars in cash to cover all expenses on their trip. You know Mr. Tolliver has been out of work most of the winter, and this small amount is all he could save from the odd jobs he could pick up. Suppose they some bread. I've got some relations strung along the way, and we thought maybe we could drop in on them at night time."

"Oh, Mrs. Tolliver," groaned the nurse, "don't tell me you are still giving those children coffee! You promised me you would stop that."

What a pathetic little group it was! All were trying to be "perlite" and wondering what the "company" meant to do.

should have trouble! Think of those six hungry little children."

"Why are you going back to Tennessee, Mrs. Tolliver?" asked Mary. "Has your husband a job down there?"

"No'm, he ain't," she replied wearily. "There ain't nothin' much there, either. Only my mammy lives there and she has a few acres, a cow, some chickens and pigs. It will soon be garden-makin' time, too. Maybe we can make out to keep from starving to death. Besides," she added confidentially, "I sorta want to be with mammy when I get down sick, you know."

What a pathetic little group it was! The tired mother holding little Jinny, who was chewing on the nipple of a smudgy empty bottle; three tousled youngsters sitting on the bed; the two eldest standing behind the stove; all trying to be "perlite" and wondering what the "company" meant to do.

"What are you going to take for the children to eat, Mrs. Tolliver?" inquired the nurse.

"Well," the mother replied, "I have two cans of coffee, some boiled eggs, a hunk of cheese and

"Well, I tried to do like you said about keeping coffee away from them, but the children tormented the life out of me 'til I had to give in," she explained.

"Mrs. Tolliver, I will make a bargain with you. If you will not take the coffee and if you will see that Baby Jinny doesn't hang to that bottle any more, I will see that you have a big basket of food to take with you," promised the nurse hopefully.

"Well, I reckon I ort to be willin' to try; you always been right good to us," said the mother after thinking it over a moment.

"All right, that is a bargain. We will be here tomorrow morning before time to go to school. By the way, what are you going to do with your furniture?" asked Miss Smith.

"We're jist goin' to leave it," sighed the woman. "It ain't much account, but it's all I got. I told my old man I reckon we couldn't have everything in life. We ain't nary one of us had to die yet. I do hate to part with the old cookstove the wo'st kind. It is a mighty fine biscuit baker."

The three visitors were thinking rapidly as they returned to the car. Miss Smith broke the silence by saying, "Well, girls, what do you think of the Tollivers?"

"Oh," groaned Mary, "to think of people living like that and still being optimistic. I'll never again complain because I can't have every little luxury I want."

"Oh, yes, you will," said the nurse wisely; "I do, and I see folk like that every day. We are all human, you know."

"I've struck it," exclaimed Mary after a short silence; "my sister has a lot of old clothes that her children have outgrown and I am going over after supper to ask for them."

"I have my last winter's coat," added Sue; "it would be large enough for the mother. It's almost as good as new, too. Besides, I am giving a couple of dollars for gas."

"You haven't a thing on me there," laughed Mary. "I had already thought of that."

After the nurse had left the teachers at their doors she went to the office of the charity organization. She knew she could get help if there was anything left to give. There had been such a drain this winter—so many men had been out of work. She found the charity workers ready to help as much as they could. They agreed to fill the machine with gas and oil and furnish some food.

While the nurse was doing this, Mary and Sue had called on other teachers in their building and collected more money for gas and a nice little pile of clothing.

The next morning when Miss Smith and the teachers called at the Tollivers they found the house had been "swept out." All the furniture had been piled in one room. Six little faces had been scrubbed and were smelling loudly of soap. The family comb had also done service this morning.

"Come," said Miss Smith, "we have some clothing for you. Line up the children. Here, J. C., is a cap and sweater. Try them on."

The boy's face was radiant.

"Now, jist looky," exclaimed his mother proudly, "I reckon you won't be such a sorry-lookin' sight. You know," she said to the girls, "he always wished for red clothes. He seems to have a proud streak in him somewheres."

Buster looked on enviously, "I don't guess any will fit me."

"Yes, Buster," said Mary reassuringly, "I have a whole suit that belonged to a very dear little boy. He said you might have it, if you did not get it too dirty and if you would wash your face and hands before you eat. Here are stockings and galoshes for you, too."

Buster was too much overcome to speak. He filled his arms and thanked Mary with his eyes.

His mother came to his rescue. "The youngin does like them, even if he can't say it. He can have a bath when he gets to his grandmammy's. He's been wantin' one all winter; says you teachers thought it might do him good."

Minty May, Victorie and Woodie were next in line and each received some warm clothing. Even Baby Jinny was not left out.

Sue's discarded coat gave the mother more pleasure than she had had for days. "Look, Pappy," she said to her husband, who had just joined the group, "it's got a real fur collar and cuffs, and lined with satin, too. I'm goin' to bundle it up and save it. I'm not goin' to have them kids settin' on it."

Finally, it dawned upon the girls that it was about time to go to school, and they began giving their farewell advice. The family followed them to the car while they talked. The children perched themselves on the steps and fenders. "Here, Mr. Tolliver," said Sue, "is $10 more from the teachers to add to the gas money. You may have some trouble, you know."

The appreciative father reached for the money. He brushed away a tear with the back of his hand.

"I jist can't thank you enough for what you've did fer us. Maybe you've kept us from starving to death," he said, almost overcome.

"I jist ain't got words to show how I feel," added the mother with a sigh.

"By the way," said Miss Smith, "I almost forgot the box of food. You have so many bundles, where are you going to put this? Here, Mr. Tolliver, get your pliers and take this luggage carrier off my car. You are going to need it."

In the meantime, the children climbed about over the machine in order to see and to be seen.

"You youngins git down off of thet car, and thank these ladies fer what they have did fer you." They obeyed without a word, one after the other, until each had done his share toward being "perlite."

The girls drove back to the school, waving farewell to the odd little group.

"I hope they won't have any trouble," sighed Mary. "Isn't it funny how quickly one can become so vitally interested in such people?"

"I'm sorry I couldn't do more toward making them want to live in a more healthful way," said Miss Smith, "but they have always lived like that and do not know any different. I suppose we shall have to hope that in the future these children will have learned enough at school to live a degree or two better than their parents. You can see that children from homes of this kind can never learn healthful habits unless they are taught at school."

When they reached the building, the girls thanked her for their experience and went back to their school tasks with a more sympathetic interest.

A week later, the nurse came running into the building and called the two teachers to read a letter she had just received from Mrs. Tolliver.

"Oh, girls," she said, "here is our pay for our efforts of last week," and began reading:

Dear Nurse and Teachers:

We got here last night. We wanted you to know we got here safe and soun. After you girls went away, we went to that gas station where we was to git the gas for nothin and there was another baskit of grub from the charity woman. The men at the station kinda thought we might have trouble, so he gave us a old spare tire and side curtains. We got along purty well til we got to Cincinatty when we got a blow-out. We was a hole hour gettin it pached and blowed up again. The noise almost skeart Jinny out of her hide, but she got right used to it before we got home. We like to never got through Cincinnatty. There was a lot of people out that day, and no one was goin the same way we was. The pliceman waved at us and whistled, but the old man was in such a hurry to get out of town he jist kept on.

We all piled in on a aunt out at the edge of town at Lexington. We spread our vittals at their house, and had a fine time. She has six kids, so we had to kinda double up. Our food stretched out until we got home. Nobody got sick and we struck some luck. Ma had built a new room on her house with her egg money, and we aire goin' to live with her. She has rumatix so bad this winter she is goin to let up on work. My old man is goin' to run the place. The cow jist got a new calf, and we got plenty of fresh milk for the kids. I reckon you thought we was pretty stubborn to stick to coffy so, but it seemed so much cheaper than milk. I told my old man when he was comin home it looked like after all you folk had did fer us we might kinda try out some of the things you said. We low to spruce up and be more particular from now on. It would be easier in a new room, and all fixed up like.

I wuz so stiff when we got home from settin the same way so long I like to never straightened up again even when I got in bed. I want to thank you for bein so kind to us. I spect I won't ever get to do nothin for you, we got such a big family and everything. But I'm goin to pray that you will be happy and never be as hard up as weins. Good-by, Mrs. Tolliver.

"Isn't that a quaint letter?" exclaimed Mary. "And to think we called them trash and laughed about going slumming."

"Well, we didn't understand them so well before we went to see them, you know," said Sue consolingly.

"After all, people are a great deal alike when their faces are washed. I feel better, too, to know my efforts were not entirely lost. I wonder if they have started 'sprucing,'" laughed Miss Smith. "Well, I must run along and see whether I can stimulate some one else to 'spruce.'"

Must Develop Safe Refrigerants

THE safety of mechanical refrigeration lies in the development of refrigerants free from poisonous elements, in the opinion of the Committee on Poisonous Gases of the American Medical Association, which recently made a report in *The Journal* of the American Medical Association.

When in 1929 ten persons died and nineteen were ill in Chicago as a result of leakage from systems using methyl chloride, a colorless, odorless gas, the recommendation was widely made that sulphur dioxide or ammonia be used as refrigerants because of their warning properties. For normal adults these definite warning qualities do indeed give some protection, but, the committee points out, it does not apply to infants, locked-in children, invalids, the insane, hospital patients, persons under the influence of alcohol, firemen and refrigerator workmen.

Irritants Also Criticized

The addition of these irritant gases to other toxic substances that do not have warning properties was equally condemned by the committee on the same ground. It is more commendable to work toward the attainment of a nonhazardous refrigerant than the attainment of a usable warning agent, when this agent protects only a portion of the public.

As a result of the catastrophes caused by refrigerating gases, various municipalities and states have undertaken to frame legislation on refrigeration. These codes make diverse requirements which hamper the makers of refrigerators and increase the cost of the machinery to the public. The committee strongly recommends that this legislation should be uniform and that it should be coordinated under a single agency such as the U. S. Public Health Service.

Blames Manufacturers

Finally the committee charges the manufacturers of refrigerators with the responsibility of testing all substances the harmful properties of which are in any wise uncertain. In connection with the recent deaths from methyl chloride in domestic refrigerator systems, sufficient medical and chemical data were available to have prompted proper safeguarding on the part of those responsible for the refrigerator equipment and installation, the committee declares in its report.

The public is now protected in respect to foods and drugs by federal law and careful governmental supervision. Similar protection is needed for possibly harmful substances outside the field of food and drugs.

SIMPLE LESSONS *in* Human Anatomy

By B. C. H. Harvey

LESSON XV. THE CENTRAL NERVOUS SYSTEM, BRAIN AND SPINAL CORD

SENSORY and motor nerve cells lie for the most part outside the neural tube. Sensory nerve cells were just outside the neural tube from the beginning of development (figs. 151 and 185), being derived from the two ectodermal crests that once connected it with the dorsal ectoderm; many motor cells (those in the sympathetic system) wander out later. The neural tube lies thus between the sensory and motor neurons and is composed mostly of intermediate cells. The enlarged head end of it is the brain and the rest is the spinal cord; the two together constitute the central nervous system. Into its dorsal part, the intelligence department, extend sensory nerve fibers bringing information. From its ventral part, the executive department, motor fibers go out directly to striped muscles and indirectly, through the sympathetic system, to the other engines of the body; namely, smooth muscle fibers and glands.

The spinal cord is only 18 inches long in a full grown man, and weighs less than one ounce. It is much shorter than the vertebral column in which it lies (fig. 181). Up to the third month of intra-uterine life it is quite as long as the column, but thereafter its growth is relatively slow, so that at birth its lower end is at the level of the third lumbar vertebra and in the adult it barely reaches the second lumbar vertebra. In a tall man it does not extend below the last rib.

The cord terminates below in a curious structure called the cauda equina, or horse's tail (fig. 181). The roots of the lower spinal nerves, forty in number, come off the cord and extend downward in the vertebral canal enclosed within the dura mater, a fibrous membrane shaped like a long glove finger which encloses the spinal cord and the cauda equina. They do not fill it, and the extra space is filled with the cerebrospinal fluid, which thus bathes the cord and cauda making a water cushion around them protecting them from shocks.

Physicians sometimes withdraw a little of this cerebrospinal fluid for diagnostic purposes. They insert a hollow needle into the tube of dura mater below the cord; the procedure is known as a lumbar puncture. Patients need not fear injury to the cord, for the needle is inserted some inches below the end of it, nor need they fear injury to the nerve roots of the cauda. The chance of putting the needle into one of these roots may be estimated by immersing a piece of string in a basin full of water and then trying to stick a needle into the string. It cannot be done.

Another membrane, the delicate pia mater, is closely applied to the surface of the cord and carries the arteries and veins that supply the cord with blood. Figure 182 shows the blood vessels of the spinal cord, the arteries being on the right side and the veins on the left. It is apparent that the central column of nerve cells, or gray matter, has a much richer blood supply than the mass of nerve fibers, or white matter, surrounding it. Nervous energy is built up, used and stored in the cells much more than in the fibers. It is in them that the real work of the nervous system is done.

Fig. 185.—Skull of the Crô-Magnon man, who lived in France 25,000 years ago. The Crô-Magnon race of men had larger brains than any other that has ever been found. (From Lull's "Evolution of Man," Yale University Press.)

The disposition of cells in the cord is shown in figure 183. They are massed in a central column of characteristic shape; there are four prominent ridges, two anterior and two posterior. In cross sections these appear as horns, and they are usually called the anterior and posterior horns. The posterior horns contain intermediate cells, which have sensory connections.

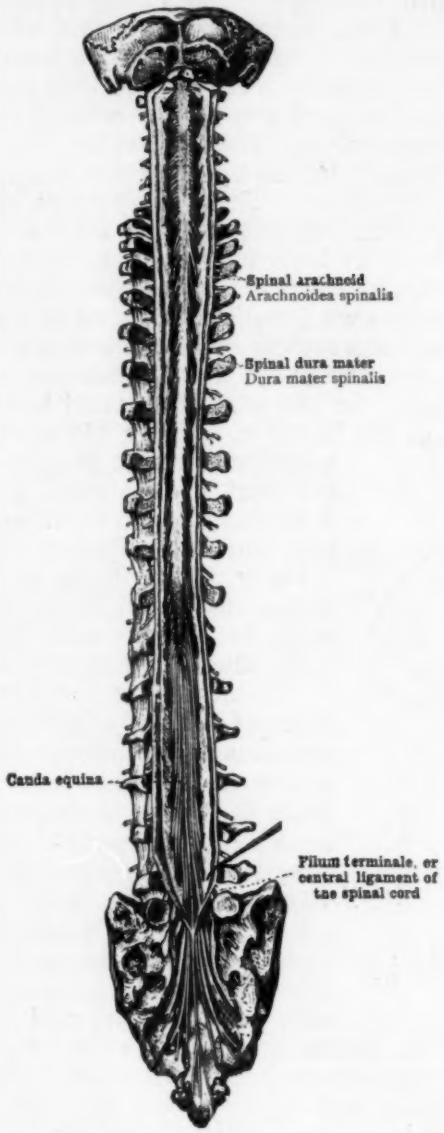


Fig. 181.—Spinal cord and cauda equina (horse's tail) in the vertebral canal. The dura mater has been opened from behind. (From Toldt's Anatomy, The Macmillan Company.)

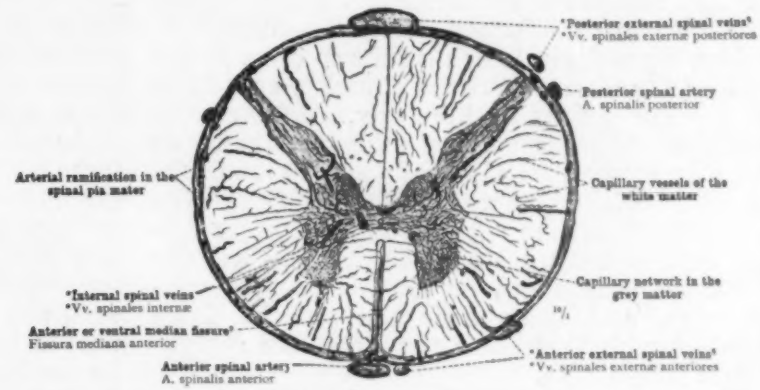

Posterior external spinal veins
*Vv. spinales externæ posteriores
Posterior spinal artery
A. spinalis posterior
Arterial ramification in the spinal pia mater
Capillary vessels of the white matter
Capillary network in the grey matter
*Internal spinal veins
*Vv. spinales internæ
Anterior or ventral median fissure*
Fissura mediana anterior
Anterior spinal artery
A. spinalis anterior
Anterior external spinal veins
*Vv. spinales externæ anteriores

Fig. 182.—Cross section of spinal cord in the thorax showing the blood vessels. Reduced from a drawing with a magnification of ten diameters. (From Toldt's Anatomy, The Macmillan Company.)

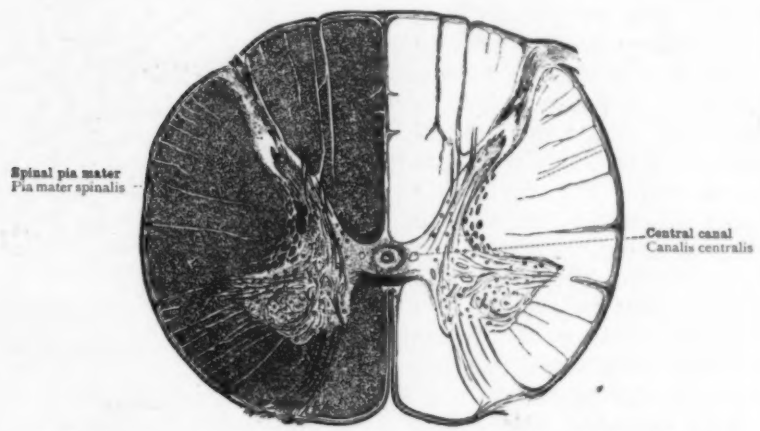


Fig. 183.—Cross section of the spinal cord in the neck showing the central gray matter with anterior and posterior horns. Reduced from a drawing with a magnification of six diameters. (From Toldt's Anatomy, The Macmillan Company.)

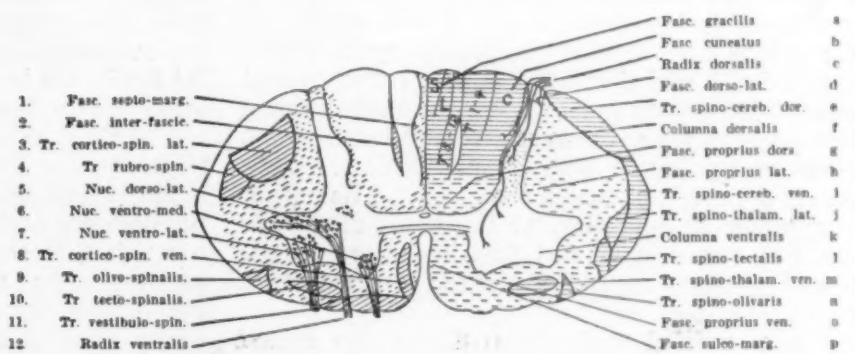


Fig. 184.—Diagram of cross section of the spinal cord in the neck, showing some of the fiber tracts, ascending on the right side, descending on the left.

Descending tracts

1 and 2. Fibers carrying sensory stimuli downward from posterior roots.
3. Cortex to cord of opposite side, controlling voluntary movement.
4. Midbrain to cord—muscle coordination and posture of body.
5. Nerve cells controlling limb muscles.
6. Nerve cells controlling trunk muscles.
7. Nerve cells controlling limb muscles.
8. Cortex to cord of same side. They cross over lower down—voluntary movement.
9. Medulla oblongata to cord.
10. Midbrain to cord—sight reactions.
11. Hindbrain to cord—equilibrium.
12. Motor nerve roots.

Ascending tracts

a. Fibers carrying sense of posture—leg.
b. Fibers carrying sense of posture—arm.
c. Sensory fibers entering dorsal root.
d, g, h. Connecting parts of cord.
e. Cord to cerebellum—muscle coordination.
f. Nerve cells of dorsal horn.
i. Cord to cerebellum—muscle coordination.
j. Cord to thalamus—temperature and pain.
k. Nerve cells of ventral horn.
l. Cord to midbrain—reflex.
m. Cord to thalamus—pain, touch, pressure.
n. Cord to medulla oblongata.
o, p. Connecting parts of cord.

The anterior horns contain motor cells for the striated muscles of the limbs and trunk. These are the site of infection and inflammation in infantile paralysis, which results so often in the loss of function of striated muscles, especially in the lower part of the body. Between the anterior and posterior horns the gray matter at the side of the central canal contains the intermediate cells, which are connected through the sympathetic system with blood and lymph vessels and with the viscera. The cells nearer the posterior horn have, as always, sensory connections, and those near the anterior horn connect with the motor nerves of the sympathetic subdivision.

The white matter of the cord surrounds the central gray column. It consists of nerve fibers entering, leaving or passing up and down within the cord. The entering fibers are sensory nerves coming in to the posterior horns. All of them come in by the posterior roots of spinal nerves. The outgoing fibers go through the anterior roots of spinal nerves to striped muscles or to the sympathetic system. The fibers passing up and down connect each part of the spinal cord with other parts or with the brain.

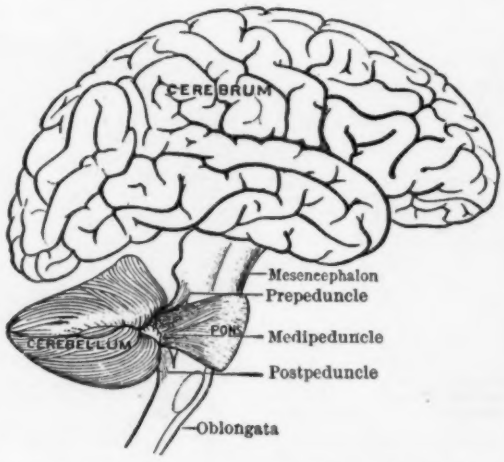


Fig. 186.—Scheme showing the parts of the brain and their connections (From Gray's Anatomy, Lea and Febiger.)

The outgoing fibers that go to the sympathetic system have an interesting peculiarity. They are not a continuous series but go out in three groups, a middle group from the thoracic region of the spinal cord to the gangliated trunk of the sympathetic and through this to all viscera and vessels, an upper group from the brain, and a lower group from the sacral region of the cord. No nerves go out into the sympathetic from the cervical or lower lumbar regions. The upper and lower groups go past the gangliated cord without entering it and join the sympathetic nerve plexuses beyond it nearer to the viscera or vessels.

These cranial and sacral fibers are called parasympathetic in order to distinguish them. They also go to viscera and vessels, which thus have both a sympathetic and a parasympathetic innervation. Their actions are usually directly opposed; one causes activity of glands and smooth muscle; the other holds the activity in check. Thus there is always a balance between these two controlling innervations and it is because this balance may be readily shifted in either direction that the action of vessels and viscera is so delicately and promptly adjusted to the changing conditions of the body as a whole.

The sensory fibers, on entering the cord, branch and pass both upward and downward in the cord (fig. 159), becoming connected with several segments. Thus they can provoke extensive reflex actions. Many fibers that pass up and down the cord are wholly within the central nervous system. They are relay fibers, some carrying information up and others carrying motor orders down. These relay fibers are grouped in definite bundles and they have definite connections at both ends with groups of nerve cells. Each occupies its own place in the cord and has its own function. Disease of one part of the nervous system can be detected and its position diagnosed by the disturbance of these functions. So the physician must know the position of the bundles. Figure 184 shows a section through the cervical part of the cord and indicates the position and function of the fiber tracts.

Many fibers cross over within the cord from the right to the left side (fig. 159), thus bringing the activities of the right and left sides of the body into harmonious cooperation. The motor fibers that descend from the brain to the cord nearly all cross over before they terminate in synapses with the motor cells of the anterior horns. Thus the right side of the brain controls the muscles of the left side of the body, and the left side of the brain the muscles of the right side. Thus right-handedness is associated with left-brainedness, and injury to the left side of the brain (as in cerebral hemorrhage) produces paralysis on the right side of the body.

The right side of the average human body is heavier than the left and the left half of the brain is slightly heavier than the right. Right-handedness and left-brainedness are associated through this crossing of intrinsic nerve fibers, and there goes with it one-sidedness of some of the higher functions of the brain, like speech control, which is on the right side of the brain in right-handed people and on the left side in left-handed. That is how it comes about that the attempt to force a naturally left-handed child to be right-handed sometimes results in stammering or other speech defects.

The Brain

The brain is just the greatly enlarged upper end of the neural tube. Figure 148 shows how greatly it is enlarged, much more in man than in any other animal and more in some races than in others, decreasing in the following order: Caucasian, Chinese, Malay, Negro and

Australian aborigine. Its bulk in an adult Caucasian man is 2¾ pints, its average weight 48 ounces (1,360 Gm.), being thus fifty times the weight of the spinal cord and 2¾ per cent of the weight of the entire body. In small men it weighs more in proportion, and in some mice and very small monkeys, it makes a larger fraction of total body weight than in the adult man. In the child at birth it constitutes 13 per cent of the total weight. The lowest weight compatible with intelligence has been found to be 950 Gm. and there are great variations in individuals. The brains of many great men have been weighed after death with the result shown in the tabulation.

	Gm.		Gm.
Gall, anatomist	1,198	Spurtzheim, physician	1,559
Whitman, poet	1,282	Kant, philosopher	1,600
Liebig, chemist	1,352	Thackeray, novelist	1,658
Goltz, physician	1,395	Abercrombie, J., physician	1,786
Helmholtz, physician and physicist	1,440	Cuvier, naturalist	1,830
Dante, poet	1,450	Turgeniev, novelist	*2,010
Agassiz, American naturalist	1,495		
Webster, Daniel, statesman	1,518		

* Questioned.

A human or prehuman skeleton has been found in Java that is believed to be 500,000 years old. Estimates of the brain weight average 850 Gm. Other ancient but clearly human skeletons show a larger brain. The largest is that of the Crô-Magnon men who lived in western Europe 25,000 years ago. They painted the pictures found in the caves of the Dordogne in France. Their brains weighed more than 1,600 Gm. and are therefore the largest human brains that have been found and probably the largest that ever existed (fig. 185). The mere size of the brain is not a sure index of intellect for some very large brains have been found in idiots. The brains of elephants and whales are actually heavier than human brains.

General Structure of the Head

The enlargement of the neural tube at its upper end is of great significance in connection with the general structure of the head. The head, as distinguished from the neck, obviously consists of two parts—the brain case, or cranium, and the face with upper and lower jaws. Each of these two parts is the enlarged upper end of one of the two main tubes of the body, the alimentary tube and the neural tube. These large upper ends project up above the top of the body wall (see general plan of structure, September, 1929, number), which ceases with the top of the neck. They look out over the top of the body wall because they have to, in order to do their work.

The particular work of the upper end of the neural tube, thus exposed, is to get for the body information about the world outside, so this part develops the special senses that are affected by things at a distance—seeing, hearing and smelling. Thus this part can learn of danger while it is yet distant, and it can find food. Then it gives such orders to the muscles and other servants of the nervous system as result in moving the body away from danger or toward food or prey. The work of the enlarged free upper end of the alimentary tube (the face) is then to seize, kill, tear and chew the food and then swallow it. Few animals get help from their hands in all this; the face and mouth do it all.

The mesoderm gives a protective covering to the sense organs, for they are delicate. It leaves admirable channels by which light and sound waves and air reach the sensitive surfaces, and it forms the cranium and the three membranes that give marvelous protection to the delicate tissue of the brain. It makes for the face the jaw bones and muscles, which do the heavy work for the alimentary tube under the direction of the brain. In the mouth, in the upper end of the food tube, is also the special sense of taste, which, because it is placed so far upward in the head, gets information about the quality of the food early, before it is swallowed and while there is still the chance to reject it.

Development of Special Senses

The great enlargement of the head end of the neural tube, so that it becomes fifty times the weight of the cord, is explained by these facts. The special senses must be developed in the head, and there they report to the brain, which must adjust the activity of every part of the body to the conditions as soon as the brain learns of them. To bring about just the right adjustments, the brain must also be informed constantly of the condition of each part of the body. The spinal cord receives most of this inside information directly, but it relays it up to the brain. The head end of all animals is thus the dominating end, and in the head end of the neural tube, up above the enclosing shelter of the body wall, exposed enough to get information, protected enough by cranium and membranes to be secure, are developed the great nerve centers for sensation, combination of sensations, memory, judgment, control and coordination of activities and consciousness. The fuller the life of the animal the more development there is at the extreme upper end of the neural tube, especially in its dorsal part. In man this has grown so much as to be relatively enormous, and in man as in animals in general the uppermost nerve cell masses dominate all the nerve cell masses below them, and through them dominate all the engines of the body.

(The discussion of the brain will be continued in the next lesson, along with a discussion of the spinal cord.)

The Undernourished School Child

By Oscar T. Schultz

THE undernourished child of early school age is a problem to both parent and teacher. The teacher fears that the child may not be equal to his school tasks. The parent fears that the child may be ill. In the home the child may be one of the group classed as difficult children. He is not difficult because he is undernourished, but is probably undernourished because he is difficult to adjust to his environment, because his maladjustment makes him finicky in his food habits.

The problems presented by the school child who is in a state of undernutrition have engaged the attention of a number of agencies. Among the latter are those interested in the prevention of tuberculosis. The undernourished state may be the result of tuberculosis or it may be a factor that predisposes the child to this disease. The student of child psychology is interested, because the undernourished condition may be the cause of backwardness in learning or it may itself be caused by psychologic abnormalities. To those engaged in the study of undernutrition as such, as an abnormal state that it is desirable to prevent or overcome, the undernourished child presents some special problems.

For a number of years the Elizabeth McCormick Foundation of Chicago has been engaged in practical work in the public schools, the object of which has been to build up those children who are below the normal standards of weight for their age, height and sex. In this work, it has been the aim, first of all, to detect evidences of infection or other physical conditions that may be factors in the nutritional state of the child. If a possible physical basis for the undernourishment is found, the child is referred to the family physician, in order that the abnormalities discovered may be corrected.

The children in whom the foundation's chief interest is centered are those for whose state of undernutrition no physical cause can be detected. The home conditions of such children are investigated by trained workers. If, as is frequently found to be the case, the child's diet is inadequate because of the family's economic condition, attempts are made to meet this difficulty. If it is due to ignorance or to improper selection, combination or preparation of the constituents of the child's diet, practical instruction is given the mother, either in the home or in neighborhood classes. If it is due to improper food habits on the part of the child, attempts are made to correct these by individual and group instruction.

In this important and highly practical work of the foundation, it was repeatedly found that in a small

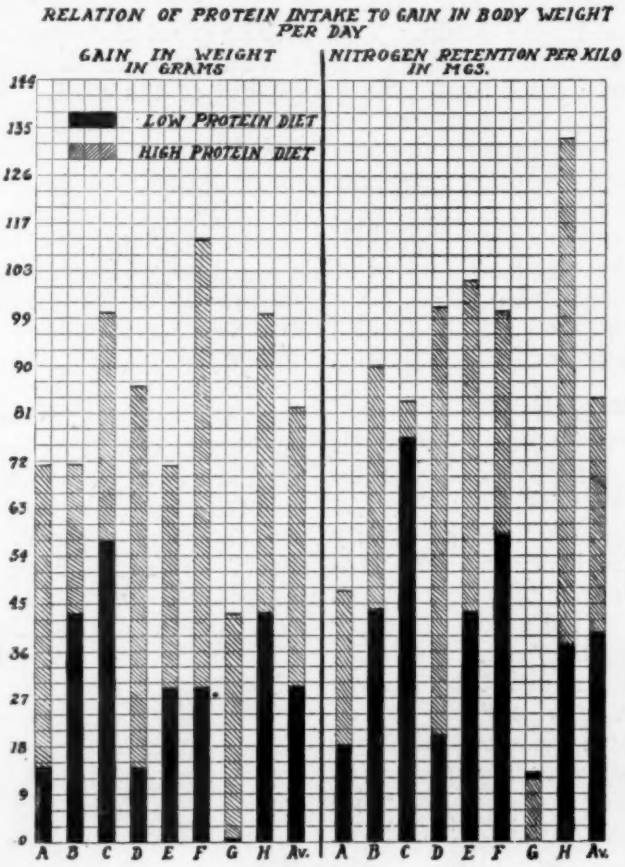


Chart showing the gain in weight of a group of undernourished children on low and on high protein diets. The greater gain in weight on the high protein diet, as shown to the left of the vertical line, is evident.

proportion of children the condition of undernutrition resisted all efforts made to overcome it. The Nelson Morris Institute for Medical Research of Chicago was asked to make a scientific study of such refractory children, in order to determine whether any detectable metabolic abnormality might be the cause of the child's failure to gain in weight. Financial support was promised by the Elizabeth McCormick Foundation and by friends of the institute for a five year period of investigation.

The work was placed in charge of Miss Chi Che Wang, a young Chinese woman, a doctor of philosophy in chemistry of the University of Chicago, a thoroughly competent student of human metabolism, and the head of the department of chemistry of the institute. She was given a corps of assistants who devoted their entire time to the work in hand.

Children in whom the workers of the foundation had been unable to bring about a satisfactory gain in weight were admitted to the Sarah Morris Hospital for Children in groups of two. For the purposes of control, a number of normal children of the same age groups as the underweight children were studied in the same way. The children were given a thorough medical examination to exclude any physical abnormalities other than underweight. They were under constant medical observation during their stay in the hospital. They were under the constant twenty-four-hour supervision of the workers of Miss Wang's staff.

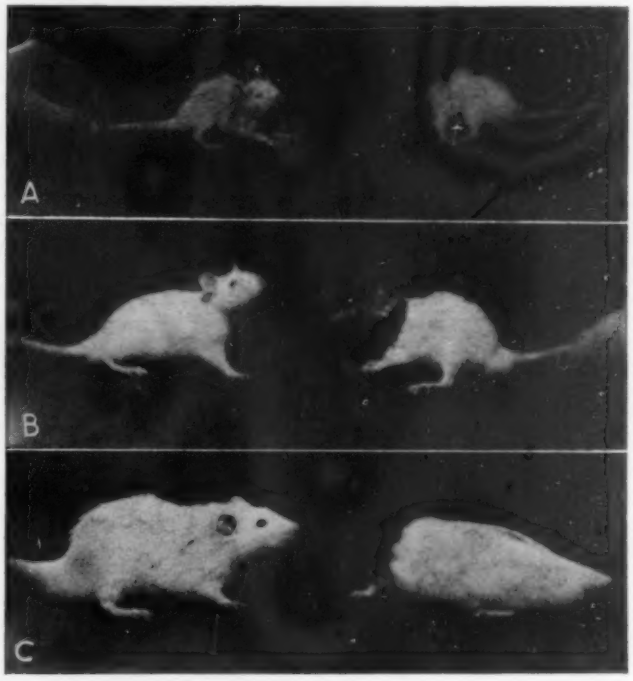
These children were not treated like sick hospital patients, but like normal children, with proper attention to play and pleasure and exercise. That their stay in the hospital did not prove irksome to the young subjects was proved by the fact that most of them did not wish to leave the hospital at the end of their periods of study. Most of them were anxious to return for later periods of further study, when such was deemed necessary.

The diets of the children were prepared by a trained dietitian who had no other duties in the hospital. She not only prepared and weighed all the food eaten by the children but supervised their feeding at every meal. The technical assistants carried out the necessary metabolic and chemical work.

Disappointments Were Many

Only those familiar with the technical details of this kind of work will be able to realize its many difficulties, its heart-breaking disappointments when a series of determinations that have been under way on a child for days or weeks are suddenly rendered valueless when some minor detail goes wrong. The careful and accurate chemical analysis of all foods eaten, of all urinary and intestinal excretions, and of the blood presented a task of no mean order. The mass of data collected required an electric calculating machine for their computation. The interpretation of the results required specialized knowledge of nutrition and metabolism.

The total number of children studied was eighty-three. In age they ranged from 5 to 13 years. They were divided into five groups according to their deviation from the accepted weight standards for their height, age and sex. Such grouping and averaging of the results by



Three groups of litter mate rats maintained since weaning on diets of equal caloric value. The diet of group A contained 2 Gm. of protein per kilogram of body weight; that of group B contained 4 Gm., that of Group C contained 10 Gm. Note the stunting in growth of the rats on low protein diet, as well as their poor physical condition.

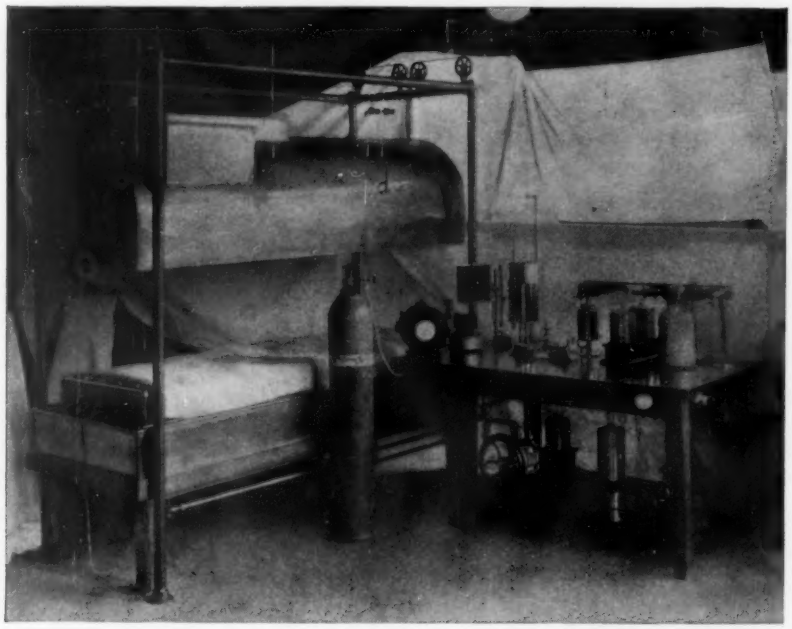
groups permitted better comparison and evaluation of the findings than would be possible from the comparison of individual children with one another. Groups 1 and 2 were children who were normal in weight. They served as controls for the underweight groups. They added much valuable information to our knowledge of the normal metabolism of the child of early school age.

Group 1 consisted of sixteen girls and four boys who were classified as vigorous normals. They were children who ate heartily and engaged actively in play. Group 2 was composed of eight girls and four boys. They were normal in weight, but were physically less active and more lethargic than the children of the first group. This subdivision of the normal children into two groups was a purely arbitrary one, but was made for the purpose of determining whether differences in muscular activity might be reflected in metabolic differences.

Group 3 was made up of ten boys and seven girls who were from 5 to 10 per cent underweight. In group 4 there were eleven girls and

seven boys who were from 10 to 15 per cent underweight. Group 5 was comprised of fourteen girls and two boys who were more than 15 per cent below the accepted standard weight for age, sex and height.

The investigation required a corps of trained assistants who gave their entire time to the subject. It required also expensive apparatus, some of which was especially constructed for the purpose. One of the specially built pieces of apparatus was a large chamber into which the child could be placed for an hour or longer, for the purpose of studying his oxygen consumption under controlled conditions. That the children did not mind this procedure was evident from the fact that they usually went to sleep while in the chamber. This fact furnished some new data relative to the energy metabolism of the sleeping child as compared with that of the same child awake but at absolute rest in bed.



Respiration chamber into which the child was put for periods of observation of an hour or more and kept at complete rest. Measured amounts of oxygen are admitted to the chamber, the air is kept in constant circulation by means of an electric blower, the temperature and moisture are kept constant, and the carbon dioxide is removed from the air as it is breathed out by the child. From the amount of oxygen consumed the basal, or resting, metabolism is determined.

The amount of time devoted to each child will be apparent from the duration of the stay of the children in the hospital, during which period they were under constant observation. One child was under investigation for twenty-eight weeks, two for twenty-six weeks, one for twenty-three weeks, three for nineteen weeks, three for fifteen weeks, and five for thirteen weeks. The rest remained from three to eight weeks each. The longer periods devoted to some of the children were for the purpose of following the weight curve and of comparing the metabolism at different levels of increasing weight with that of the initial state of undernutrition.

One of the earliest results of the investigation, and one that was repeatedly confirmed throughout its course, was that it was possible to bring about a satisfactory gain in weight in every child under the controlled conditions of the study. It is to be remembered that the children in whom this could be done were such as had failed to gain in weight under the methods pursued in the school and in the home. To cause an increase in weight, however, required such constant and painstaking attention on the part of a trained dietitian as to make it appear questionable whether the result obtained was worth the effort expended. This is especially true in view of the fact that further investigation failed to yield any evidence that the underweight child is a sick child or that he has any serious abnormality of nutrition.

The basal metabolism, which is a measure of the metabolic activity necessary for the functioning of the body in a state of complete rest, was found to lie within the normal limits of variation in the underweight children. As compared with the normal controls, it was slightly decreased, the decrease being proportional to the decrease in weight. A similar but slightly greater lowering of the basal metabolism has been noted in normal adults during periods of starvation or fasting. The slight decrease observed probably indicates that the body uses up some of its muscular tissue when the decrease in weight has reached such a degree as to have caused a disappearance of stored sugar and fat.

The retention of calcium—that is, the ability to store and utilize this mineral element so necessary for the development and growth of bones and teeth—was found to be slightly better in undernourished than in normal children. Studies of the calcium needs of normal children placed their requirements at a higher figure than that determined by previous investigators. The retention of nitrogen was markedly better in the undernourished children than in the normal ones. This element, which is derived from the protein foods such as eggs, meat and milk, is necessary for the rebuilding of the living tissues. The fact that the underweight child, who has lost his stored fat and sugar, carries on his physical activities at the expense of his living tissues is compensated for by his greater ability to use the material so essential to the rebuilding of living tissue. This scientifically interesting and practically important finding was confirmed by some experiments carried out on young white rats. It was found that these

animals, if placed on a diet high in protein as soon as they could be removed from the mother, grew more rapidly and gained in weight astonishingly better than did their litter mates, which were kept on an equivalent diet low in nitrogen. For the growing child, especially if he is underweight, there does not appear to be a possibility of excessive intake of nitrogenous foods. The underweight children, who were under observation for long periods of time, made much better gains in weight during periods of high protein intake than on low protein intake.

Underweight Not a Disease

No abnormalities were found in the other phases of the nutritional processes studied. The undernourished state cannot, therefore, be ascribed to faulty digestion or to impaired absorption of the products of digestion from the intestinal tract or to any abnormality in the utilization by the tissues of the products of digestion after their absorption.

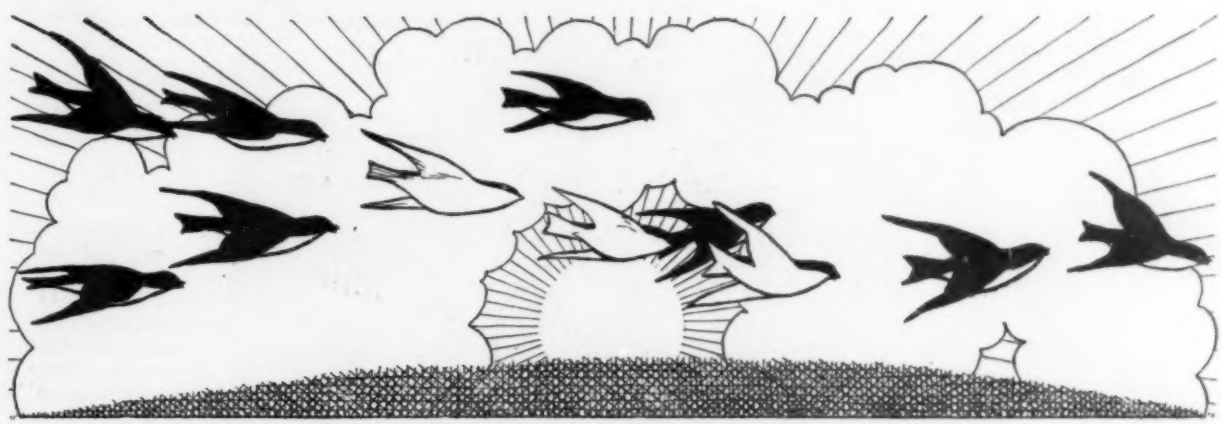
A criticism that may be offered against this extended study of the metabolism of the undernourished child is that the findings were so largely negative. No cause for the underweight condition could be detected, so far as the nutritional processes that can be made the subject of study are concerned. But such negative findings are in themselves of the greatest importance. They indicate that the undernourished child, provided that there are no physical defects to account for his state of undernutrition, is not a sick child and that he is not the subject of any metabolic abnormality. The positive results of practical value are that such children can be made to gain in weight if sufficient attention is paid to their diet and that the latter must contain relatively larger proportions of protein foods than that of adults.

The state of undernutrition in a child of school age deserves attention. Such a child should have a thorough physical examination by a competent physician to exclude infection or any other condition of disease that might be a cause of underweight. If the physical causes of underweight can be excluded, the undernourished state is probably largely or wholly a matter of diet. The latter must be studied and its adequacy for the needs of the growing child determined. The diet should be relatively high in protein foods. The calcium needs of the child should be met by a liberal intake of milk. The diet must, of course, contain the accessory food factors, or vitamins, that are so essential to good health and to normal growth and development.

Resistance Lessened by Underweight

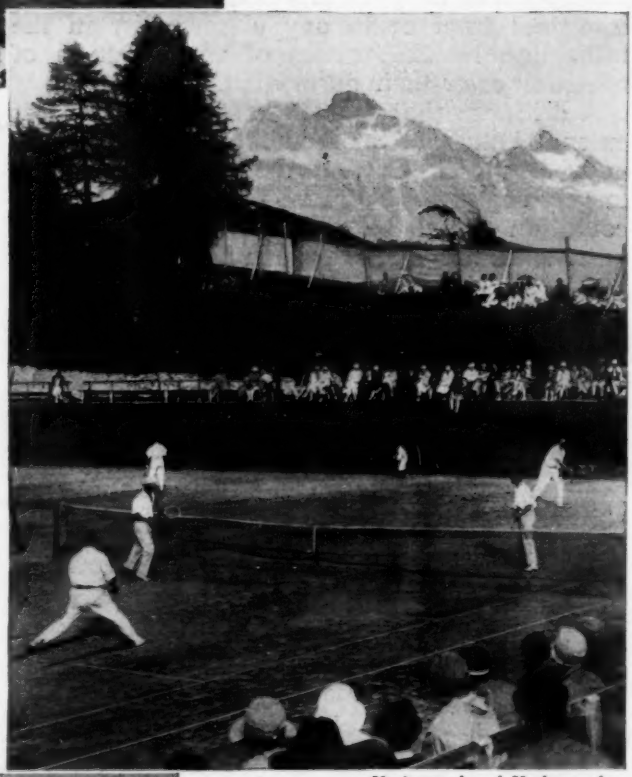
If the family dietary, upon investigation, is found to be a satisfactory one, then the food habits of the child should receive attention. In the children of the well-to-do, the fault will usually be found to lie here. These are the petted and pampered children who have to be coaxed and cajoled into eating. Correction of faulty food habits may require the advice of one versed in the psychology of childhood. Aversions to desirable foods must be overcome. The striving of the child for attention, which may take the form of refusal to eat unless constantly urged by the mother, should be overcome.

The state of undernutrition may make the child more susceptible to infection. It may make the child unequal to the demands made on him by school work and play and growth. For these reasons the attempt should be made to bring every underweight child up to its normal weight standard. But it is well to know that underweight in the otherwise normal child of school age is not in itself a disease.



Underwood and Underwood

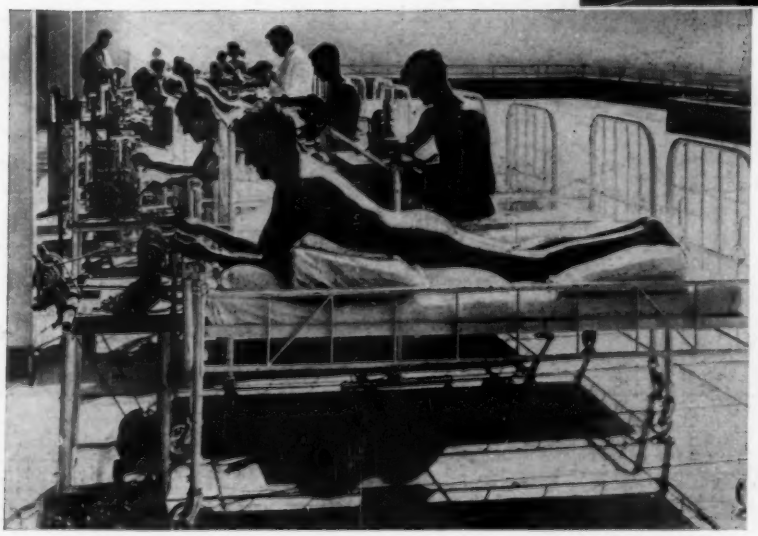
SUMMER TOURISTS FLOCKED TO THIS NEW BEACH, opened this summer at Lucerne, Switzerland.



Underwood and Underwood

ST. MORITZ IN SUMMER

It is warm enough at St. Moritz now for tennis, but eternal snow and ice remain on the Alps that tower above the world's most famous winter sports resort.



Herbert Photos

AGAIN, SWITZERLAND

Watch-making combined with the rest cure is an unusual experiment being tried out at Leysin, famous town in the Swiss Alps where Dr. A. Rollier developed his clinic for the use of fresh air and sunlight in the treatment of tuberculosis.

Underwood and Underwood

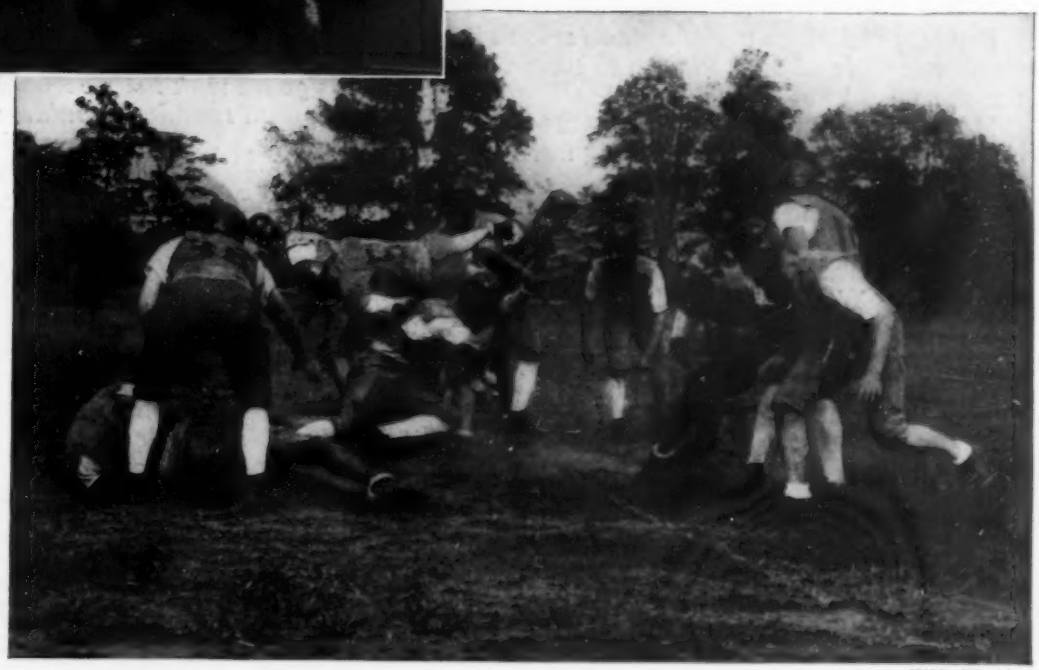
GUILTY OR NOT GUILTY?

Students at the Harrison Elementary School in St. Louis act as traffic officers near the school buildings and bring violators of safety rules to trial in their traffic court in the schoolroom.

Pacific and Atlantic

HIS MASTER'S EYES

"Lux" is the significant name of this big German police dog which pilots the blind Senator Thomas D. Schall of Minnesota as he goes about Washington. The Senator became blind after he began to study law, but with the aid of his wife went ahead with his career.



Wide World

FORDHAM UNIVERSITY PLAYERS TURNED OUT FOR SCRIMMAGE with the mercury at 94 in the shade.

"Mrs. Philips thinks of everything, doesn't she?"

The Duchess of Trent

In Two Acts

By Marion Wathen Fox

CAST OF CHARACTERS

PHYLLIS	RUTH
MAUD	MRS. PHILIPS
MURIEL	MAID
BETTY	DUCHESS OF TRENT

Act I

SCENE: Room in Mrs. Philips' house, in which four girls of high school age are variously occupied: Phyllis playing the piano, Maud doing fancy work, Muriel writing a letter and Betty reading. All are prettily dressed, but stoop over their occupations, with bent shoulders and chests contracted.

PHYLLIS *(turning on piano stool):* Isn't it perfectly adorable of Mrs. Philips to have us down for the week!

MAUD: It certainly is. Just the rest and change we needed before tackling our last term at high school.

BETTY: It was thoughtful of her, too, to give us this first morning to ourselves, to do what we liked before starting our gaieties.

MURIEL: Well, you see she had to go to the city to see that wonderful friend of hers who arrived last night, the Duchess of Trent.

PHYLLIS: Just imagine having a real Duchess for one's friend.

BETTY: The only thing that's going to spoil this visit for me is Ruth's not coming; I wonder why she didn't come. *(Door opens and Ruth hurriedly enters, smiling and radiating happiness; her dress is much simpler and less expensive than that worn by the others.)*

RUTH: Ah—I heard that! But here I am safe and sound, at the last minute. To tell you the truth, girls, I gave up coming on account of my clothes—couldn't afford to get a new rag, and I knew you girls would have so many nice things. However, mother shamed me into coming—said if an education didn't make me bigger than clothes it wasn't the right kind of education—what do you know about that!

MURIEL: I see you have your typewriter with you; surely you don't intend to work here.

RUTH: Oh, thought I might get a little practice on the side. Do you mind if I rattle a letter off to mother right now? *(Opens typewriter and, sitting very erect, starts letter. Other girls go on with their occupations, stooping over them with rounded shoulders and sunken chests as before. While they are doing this the image of a beautifully dressed lady is reflected in a mirror hanging on wall behind the girls; the girls also are reflected in the mirror.)*

MAID *(entering with a tray containing cups and plates of rolls and cookies):* Mrs. Philips left word to serve you with cocoa at 11 as luncheon will not be before she returns.

BETTY: Lovely!

PHYLLIS: Oh, thank you so much! *(The girls gather about table and start drinking cocoa and eating rolls; all, except Ruth, lolling as before. The woman's image shows in mirror every now and then.)*

MAUD: Mrs. Philips thinks of everything, doesn't she? *(A stir is heard at the door, and women's voices; immediately Mrs. Philips and the Duchess of Trent enter.)*

GIRLS *(rising in surprise):* Oh, Mrs. Philips!

MRS. PHILIPS: All here, you dears! You look so nice! I stole a march on you and got back earlier than I thought. I persuaded the Duchess of Trent to motor out *(introduces the Duchess to each girl in turn).*

DUCHESS: Why you look like a garden of flowers! But we've disturbed you at your cocoa. Sit down, dears, and drink it while it's hot—please. *(Girls do so, all except Ruth, with chests contracted as before. The Duchess looks smilingly, but shrewdly, from one girl to the other.)*

MRS. PHILIPS: You'll have a cup with them, Duchess!

DUCHESS: I'd much prefer tea, if you don't mind—in a little cup and with one of your charming young friends to pour it, please *(laughingly).*

MRS. PHILIPS: Delightful! I'd like one myself. You see, girls, the Duchess and I have to go back to the city to a 2 o'clock luncheon—but I'll tell you about it later. Now, if you'll excuse me, I shall run and see about the tea myself *(leaves room).*

DUCHESS *(to Maud):* Show me your fancy work, dear—lovely! Do a stitch or two for me till I see how it's done. *(Maud complies, stooping, and with chest sunken as she works.)*

DUCHESS *(to Betty):* You were reading—would you mind reading me just a paragraph from your book—anywhere. I so love to hear the voices of young girls. My own daughter *(sadly)* who left me last year used to read aloud to me. *(Betty shyly reads aloud from book. Mrs. Philips and the maid enter, the maid carrying tray with cups, teapot and plate of sandwiches.)* Thank you, my dear *(to Betty).* You see, Rose *(to Mrs. Philips),* your young friends have been humoring the whims of an old lady.

MRS. PHILIPS *(laughing): Old!* Now, whom shall you choose to pour your first cup?

DUCHESS: The young lady who was playing the piano—Maud, I think it is. *(Maud blushingly sits down to the tray and pours the tea, stooping as she pours. Mrs. Philips hands the tea to the Duchess, Phyllis passes her the sandwiches and also serves Mrs. Philips, for whom Maud has also poured a cup of tea.)*

"Do you mind if I rattle off a letter to mother right now?"

MRS. PHILIPS: I'm so sorry to leave you this first day, girls, but I'll be back in time for dinner this evening. Feel that you own the entire house and grounds and have a good time while I'm gone. You see the dear Duchess has to leave this evening and I want to see all I can of her. She is starting shortly on a year of foreign travel.

DUCHESS: Now, I'm ready for that second cup—you see, she gave me a small cup as I requested. Ruth—you see I've remembered your name—will you please take the tray to that little table where you have your typewriter, and pour it there and bring it to me yourself, like a dear—see how full of whims a Duchess can be! Pardon me, Rose *(to Mrs. Philips)* for ordering your guests about so. *(Ruth does as requested, sitting up properly as she pours the tea, and carrying herself well—with properly expanded chest—as she walks across with the tea to the Duchess, who stands and hurriedly sips the tea.)* Now, I'm afraid we shall have to rush away. Do all come out to my car and see us off. I'll say good-by to you there—please! *(Girls all hurry to comply, and the Duchess looks from one to the other as they file out the door. Curtain drops as they all walk from the stage with same bearing as before.)*

"Call it the 'Duchess of Trent March.'"

Act II

SCENE: Same room as before. The girls are seated about the room. Just as the curtain rises, Mrs. Philips enters the room with an open letter in her hand.

MRS. PHILIPS: Oh, girls, I've had a letter from the dear Duchess. But it's really more for you than for me—and, it has a surprise in it.

GIRLS *(looking much surprised):* For us?

MRS. PHILIPS: But, first, I have a confession to make. Have you noticed that mirror over there? Well, the Duchess watched you for quite a while through that before she came in that day she was here.

PHYLLIS: She did! But why?

MRS. PHILIPS: The letter will tell you. Before I read your part I must explain a bit. The Duchess had one beautiful daughter, just about the age of you girls. She adored her and the daughter was her constant companion. But she died last year. That is really why the Duchess is taking this long trip abroad. She intends to take some young girl with her on her trip if she can find one to appeal to her—to take the place of her daughter as near as that is possible—and to be a companion to her on her trip.

MAUD *(laughingly):* I wish she'd take me.

PHYLLIS: Or me.

MRS. PHILIPS: Well, that's just what she came here for; I told her you were all here.

GIRLS *(in great surprise):* What!

RUTH: I was so ashamed of my old clothes.

MRS. PHILIPS: Just listen to this *(reads from letter):* "Give all your girls my love. They are darlings, but—why are they not being educated physically as well as mentally? I simply could not have as a companion a girl who stoops as much as they do. Their poor lungs—I could almost hear them scream: 'I can't take in this fresh air properly! Do give me a chance to breathe. I can't if you keep me cramped up so!' They are all pretty and were dressed so daintily, but it is half wasted by their poor carriage. They have no appearance when they double themselves up the way they do—cramping their lungs and stooping their shoulders when they poured and drank tea (cocoa, I mean), played the piano, read, wrote, did their fancy work and even when they walked across the floor or the lawn. Likely they have formed the habit when poring over their school books; well, they are laying the foundation for delicate health in womanhood. It is so important that I have with me some one who radiates health—hunched up as they are they cannot. After all, a Duchess should look a Duchess, and she likes to have as her companion and friend one who does the same. Besides, an erect and proper bearing commands more respect and attention when traveling—and admiration, also. I think this is true as well in the business and social world. It is more important even than good looks or clothes. The most poorly dressed of the girls, and not really the prettiest, seemed to me the most charming, because she possessed what the others lacked—a good bearing and an erect appearance. She did not sit and stand with her chest contracted and her lungs in a cramped position; therefore—I choose Ruth to take the year of travel with me to China, Japan, India and Egypt, ending up with France and Italy. That is, if she and her parents will consent, as I sincerely hope they will. I am writing them all the particulars tomorrow and mean to sail immediately after the school term closes. Please read this to the girls; also, kindly make a copy of it and send to their various teachers, and perhaps they will be more careful in educating the body in future." *(Mrs. Philips abruptly stops reading and there is perfect silence for a time; Phyllis and Muriel cover their faces with their hands, bending down their heads as though overcome with emotion; Maud gulps out "Oh, dear! To think of missing that!")*

BETTY *(half sobbing):* Well—it just—just serves us right. Mother has been after me about that very thing—and—and every word the Duchess says is true—yes, it is girls! But—oh, Ruth, I'm so glad for you; you deserve it all. *(Other girls jump up and hug Ruth.)*

MURIEL: You can just tell the Duchess that we're going to start reforming at once. I'll keep a copy of that letter pinned over my study table to remind me that good posture is important. *(Mrs. Philips hurries to the piano.)*

MRS. PHILIPS: We'll start the good work at once—Ruth, you're the "conquering hero," so please lead in a march. In line, girls! Heads up! Hold your chests as if you were prepared to meet a blow. My, what a difference that makes in your appearance! I'll call this march "Ruth Marching Through Egypt!"

RUTH *(laughing and much excited):* Oh, no—please; call it "The Duchess of Trent March." *(All the girls clap their hands. Mrs. Philips plays a pretty march with well defined time, and the girls march up and down the stage, carrying themselves as erect as possible; if there is sufficient space they may go through various fancy marches or movements, finally marching off the stage and down the aisles of the hall or school.)*

"I'll bet I could kill as many dragons as Lancelot," said Tommy.

SQUIRE TOMMY

By *Harriott B. Churchill*

"OH GEE," grumbled Tommy as he closed his book, "why can't there be exciting times now like there were in the Round Table days? Everything is so tame."

Uncle Jerry looked up from the desk at which he was writing and smiled.

"A great many people think that things are quite exciting enough today, Tommy. Why do you think you'd like King Arthur's court better?"

"We don't have knights and dragons and jousts and battles now," said Tommy.

"Or fair ladies," Uncle Jerry suggested.

"Aw, they're only girls and don't count. It's the knights I'm talking about. Why I'll bet I could kill as many dragons as Lancelot any day."

"And be as good as Galahad?" asked Aunt Betty.

"Well, yes—maybe. I could go fight in the tourneys and go on quests like all the rest of them, and when Arthur went out to battle I'd be the first of his men to join him. I'd keep my sword so sharp it would just whack heads off."

Uncle Jerry nodded.

"Well, all the fun isn't over yet. There are plenty of knights going about the world today following a great king who needs all the men he can get."

"Who is he?" asked Tommy eagerly. "Who are they?"

"Here comes one up the path now," Uncle Jerry answered.

Tommy ran to the window to look out and then turned away disappointed.

"Aw, that's only Dr. Bradley come to see Grandma. He's no knight."

The bell rang, and Tommy went to open the door. The big doctor came in, dropped his bag on the floor and took off his coat. Mother came in from the kitchen.

"Tommy, after Dr. Bradley has seen Grandma he's going to give you some toxin-antitoxin so you won't get diphtheria. Don't go away." Then she and the doctor went up stairs. Tommy went slowly back to the library.

"Did you hear that?" he asked. "Going to give me that old diphtheria stuff. Bobby said he had it the other day. It hurt to be stuck with that needle thing, too. I don't want it."

Uncle Jerry sat back in his chair, and his eyes twinkled.

"Tommy, what was King Arthur trying to do?"

Tommy's face glowed. "Trying to unite his kingdom and to keep people good, so that he

could have a strong kingdom. He wanted all his knights to be strong and good and destroy wickedness."

"Did he do it?"

"Nope. The knights didn't do what he wanted them to. The kingdom was destroyed. There were a few knights who stuck by him, but they couldn't do much against all the others who were bad."

"Do you remember what I said about another king who was trying to do what Arthur was?" asked Uncle Jerry. Tommy nodded.

"Yes. Who is he anyway?"

"Well, he's a very wise and good king just as King Arthur was. Just as King Arthur had a hard time getting his kingdom together and his knights around him true and faithful, this king is having to fight to keep his kingdom together. He has a few trusted knights who have sworn to do his fighting, to keep their shields bright and shining. Every day more men are going over to his standard and helping fight. Some men are fighting his foes on the north, some those on the south, some those on the east, and some those on the west. His kingdom is besieged on every side, but those brave and true men are helping him defend it. Many of them bear the scars of battle; and many of them, men who would rank with Lancelot and Sir Bors, have lost their lives, slain by the enemy. For every man slain another must take his place if the kingdom is to stand.

"The rest of us can be squires."

"But while these men are fighting for the king other men who cannot bear arms and wear armor are serving as squires and armorers to the true knights. They bring the reenforcements to the front lines. When a knight's shield is pierced, it is a squire who rushes into the battle and brings him a new one. When a sword snaps, a squire presses a new one into his hand. Every squire and armorer is helping the king, who hopes that some day he may make that squire a knight. I tell you it is a great old fight. I'm proud to be a squire."

Tommy's eyes were shining. His cheeks were red.

"Can I be one, too, Uncle Jerry? I'm awfully quick. I could bring shields and swords."

"Surely you can. But when you hear who the king is, you may not want to join his squires."

"Yes, I will. Tell me quickly."

"The king's name is Science and his is the Kingdom of Good Health. Every doctor or every man who is working on problems of health is one of his knights. The doctors are the knights we see most often, and many, many of them bear wounds that they have received in their fight against the enemies of Good Health. You know their enemies—the knights of Disease, who are led by King Ignorance.

"Science knows that if Ignorance can conquer, the Kingdom of Good Health will fall to pieces just as King Arthur's did. He knows that all his knights must be good and true men who will dare to go into battle against the knights of Disease. Dr. Bradley can tell you of the great men who have lost their lives in the battles with yellow fever, sleeping sickness, tuberculosis, diphtheria, and smallpox. By their efforts they have held the foemen back until the next brave knight and his comrades could rush in and hold the line.

"The rest of us can be squires who aid these knights. Every one of us has a big part to play in this great battle. Every time one of us is careful about washing his hands before meals, getting plenty of fresh air and drinking plenty of pure milk and water, he is helping keep the Kingdom of Good Health strong and united. This is the way we bring new swords and helmets to the fighting knights. It's a pretty good feeling to know you're a squire to a brave knight."

"I'm going to be a squire all right," said Tommy. "Mother isn't going to have to tell me to wash my hands any more.

"Say, can you be dubbed squire as they dub a man a knight? I want to be Dr. Bradley's squire."

"That's the way to talk!" cried Dr. Bradley who had been standing in the doorway listening. "I'll dub you my squire and give you a light suit of armor all at the same time." He opened his medicine bag and began to take out some instruments and tiny bottles. "Now if a man wants to become my squire I dub him with this," and he held up his hypodermic. "And this," he held up a tiny tube that held some liquid, "gives him a suit of armor."

"That's the toxin-antitoxin stuff, isn't it?" asked Tommy.

"Yes, sir. Do you want to be dubbed a squire?"

"You bet I do," said Tommy taking off his coat and rolling up his shirt sleeve. "This is a real fight, this is; and I want to be in on it."

It only took a minute once Dr. Bradley had his things ready, and when Tommy looked proudly at the little pin prick on his arm, Dr. Bradley laid his hand firmly on Tommy's shoulder.

"Roll down thy shirt sleeve, Squire Tommy."

"And Bobby said that hurt," said Tommy scornfully. "Just wait until I get to be a knight, I'll show him how to take real hurts. Some day I'm going to be a knight and be called 'Dr. Tommy.'"

HEALTH *and the* SCHOOL

Edited by
J. Mace Andress, Ph.D.
67 Clyde Street, Newtonville, Mass.

An Experimental Health Education Program

THIS is an age of experiment in education. No longer in our progressive schools do we follow automatically certain general educational principles and methods that have become hoary with age and long usage. There must be a fair criticism of aims, methods and values. There should be a testing of results and carefully planned experimental adventures in fields made new by modern scientific investigation. What has been done may continue but only if it has proved its worth.

The New York City public schools are fortunate to have Dr. A. K. Aldinger, director of health education, and Dr. I. H. Goldberger, assistant director of health education, interested in the initiation of an experimental health education program. The principal activities of this health program are defined as follows:

1. Establish good health habits among pupils.
2. Develop health ideals and attitudes among teachers as well as children.
3. Arouse a sense of responsibility for maintaining personal, home and community health among the pupils.
4. Assist class teachers to detect and to help correct physical defects among school children, through a better understanding of the procedures and follow-up of physical defects found on School Health Day.
5. Help class teachers utilize the time spent in teaching hygiene to better advantage, through projects, guidance, health information, accurate knowledge, materials, methods and inspiration.
6. Standardize health procedures such as the daily morning hygiene inspection; use of daily morning hygiene inspection chart; employment of health posters.
7. Encourage children to be immunized against diphtheria.
8. Section off wardrobes for care of children with infested heads.
9. Weigh and measure children, at monthly intervals, to stimulate an interest in growth and improvement in nutrition.
10. Provide the best illumination in order to prevent vision defects and eyestrain.
11. Encourage children to visit their dentists twice a year.
12. Seat children with vision and hearing defects near the front of the room.
13. Employ visual instruction for teaching hygiene.
14. Use modern and practicable aids and projects in teaching health.
15. Arrange for speakers to address children on interesting health topics and related subjects during assembly periods.
16. Inculcate the habit of washing hands at regular intervals during the day.
17. Supervise lunch room service.
18. Distribute interesting leaflets, booklets and bulletins on health topics.
19. Maintain good ventilation through the use of windows open above and below.
20. Maintain classroom temperature not above 68 F.
21. Refer indigent children to clinics for the correction of defects.
22. Teach first aid and safety first measures.

The general plan of operation is to appoint from one to three teachers with special interest and aptitude in each school to act as health counselors. Every other week the special teachers of health education meet with Dr. Goldberger to receive information in regard to the health program and to discuss matters of common interest. Instructions are carried back to the schools by the special health teachers, and through the health counselors the specific directions are put into operation. All the special teachers of health education receive copies of the minutes of the meeting.

This program had its beginning Feb. 1, 1929, in thirty-two elementary schools in one section of New York. The work proved to be so satisfactory that it has since been extended to about 190 elementary schools.

The reading of the minutes of the conferences of the special teachers of health education shows that definite plans of procedure were

Redstone School, immortalized in the famous nursery rhyme "Mary Had a Little Lamb," at Sudbury, Mass. The school building is now owned by Henry Ford and a tablet on a large stone in the yard commemorates the children's classic.

worked out in reference to such problems as: formation of nutrition groups for malnourished children; discovery and prevention of vision defects; pupil training in proper illumination of classrooms; proper use of drinking fountains; training of children in maintenance of a sanitary state in the toilet rooms; optimum temperature in classrooms; instruction in regard to sensible clothing and shoes; reports on experiments, and outcomes of teaching in various grades.

It is evident that this plan of organization on an experimental basis offers many chances for progress and that the teaching force of the New York City schools welcomes this opportunity for working out a vitalized health program.

In any school system, individual school or even in a particular classroom there is always an opportunity to try things out experimentally. It is the way to keep alive in education.

WHAT PROGRESS AM I MAKING IN MY HEALTH WORK?

ONE of the wholesome attitudes in the teaching profession today is that of expecting results. It is true that in the days of our grandfathers educators also expected results, but those results were largely restricted to the realization of particular academic aims, the most striking of which was the acquisition of information. The measurement of such knowledge was limited to formal examinations. Now we have knowledge tests that are carefully standardized so that after children in a certain grade have been tested in a subject like reading we can tell whether the class as a whole or the various individuals are up to a certain standard of achievement. Progress has been made in the formulation of such tests in hygiene, but more needs to be done.

Today, however, we are expecting that the health educator will bring about changes other than in the field of knowledge. Children should change their attitudes and habits so that they may be more wholesome and effective in promoting good health. If possible, the physical environment of schoolroom, school buildings and grounds should be made more sanitary or be used in proper ways for the advancement of healthful living. For example, it is not uncommon to find a school building that is fairly well equipped for the washing of hands but the equipment is seldom used. Then there are the parents and the larger community. Gradually they should be stimulated to appreciate and understand what the school is attempting to do and finally to cooperate in its efforts.

Changes that are worth while cannot be accomplished over night. They usually require careful thinking and planning. The educator must have clearly in mind what he wants and then work steadily for its accomplishment. The educator's aims should grow naturally out of his needs. These needs can be understood only after a careful survey of health assets. Then the teacher will be able to aim the health program at the most pressing health needs.

With this in mind the National Tuberculosis Association, 370 Seventh Avenue, New York City, has issued a suggestive leaflet entitled "Teacher's Inventory of Health Assets." It has three headings—The Schoolroom, The Community, The Pupils. We reproduce that part of the leaflet containing questions that the teacher should ask himself. This leaflet is intended particularly for teachers in rural schools, but will be suggestive to other teachers.

THE SCHOOLROOM

Is my schoolroom a healthy, happy place? Yes....No....

If you have a janitor it is important for you to make him appreciate his responsibility in your health program. His cooperation will help materially in questions 2, 6 and 7 of "The Schoolroom."

Is the ventilation good? Yes....No....

Have you plenty of fresh air?
Have you a thermometer?

Is the lighting good? Yes....No....

Enough light for the pupils at all the desks to read with comfort; protection from glare; no pupil sitting where direct rays shine in his eyes; no cross lights on opposite sides of the room.

Are the seats properly adjusted to the pupils so as to make good posture possible? Yes....No....

When the child sits as far back as possible in his chair his feet should be flat on the floor. The desk should be the height which makes it possible to write without stooping forward or sitting crooked in order to put the elbow on the desk.

Is plenty of safe drinking water available? Yes....No....

If you are not sure about the water supply, have it tested by the health department. If the water is kept in a container in the schoolroom be sure it is tightly covered. Use individual drinking cups which may, if necessary, be made of paper by the pupils.

Is the condition of the toilets satisfactory? Yes....No....

Are they clean and well lighted?
Is there an adequate number?
Is a supply of clean toilet paper always on hand?

Is there opportunity for the children to wash their hands? Yes....No....

Liquid soap, individual towels and time allowed for their use.

THE COMMUNITY

Am I making any definite effort to bring the home and school together? Yes....No....

It is worth while to see that the parents understand what you are trying to accomplish in your health program. This may be done through parent-teacher associations, mothers' clubs and home visits.

Have I interested my school trustees so they are ready to help me make the school a healthy, happy place for healthy, happy children? Yes....No....

School trustees who have been convinced that conditions such as insanitary toilets, unsafe drinking water, etc., are harmful to the health of children will not usually fail to take action.

Do I work with the local health officer in helping to prevent the spread of communicable disease? Yes....No....

By informing yourself as to early symptoms of common communicable diseases and being alert to recognize them; by helping to influence parents to have their children protected against smallpox, diphtheria and typhoid fever.

Is there medical inspection of the children in my school? Yes....No....

Is there a school nurse? Yes....No....

Are there any conditions in the community which affect the health or safety of school children to which the attention of the public should be drawn? Yes....No....

This may be understood to include such factors as: unregulated traffic near the school; unwholesome lunch counter nearby; unreasonably early hours of calling for children by the school bus.

THE PUPILS

How many of my pupils look like healthy, happy children? No. ....

Alert, happy expression, neither listless nor fidgety, clear eyes without rings under them, a ruddy color in their cheeks.

How many have good posture? No. ....

Sit and stand with their bodies straight, heads up.

How many usually breathe through the nose with mouth closed? No. ....

Habitual mouth breathing may be a sign of physical defect.

How many have teeth which seem to need attention? *No. ....*

How many give evidence of having good sight? *No. ....*

Read what is on the board without difficulty from the back of the room; do not hold the book too close to the eyes or squint when reading. The health department in many states will supply the Snellen eye chart on request.

How many give evidence of good hearing? *No. ....*

The teacher should assure herself that a child who seems dull or inattentive is not merely having difficulty in hearing what she says.

How many bring an adequate, nourishing lunch to school? *No. ....*

It is desirable that milk and fresh fruit be included and in winter a hot dish. This applies to schools where the children eat their midday meal at school.

So far as I can judge from my knowledge of home conditions, how many have three nourishing, wholesome meals each day, eaten without haste or confusion at regular hours? *No. ....*

Not less than a pint of milk each day, at least one vegetable, besides potato, fresh fruit at least twice a week, either meat, fish or eggs once a day, plenty of water, no sweets between meals may be considered a minimum standard.

How many sleep long hours with windows open? *No. ....*

Children in primary grades should get eleven hours of sleep. All children in the elementary grades should get at least ten hours. Sleep in a quiet, dark room with plenty of fresh air is the most restful.

How many, as a rule, are neat and clean in appearance? *No. ....*

How many play out of doors whenever possible? *No. ....*

A progress chart in this leaflet gives the teacher an opportunity to record progress in certain aspects of the health program. One example given there is a realization of a sleep problem. After class discussion on the relation of sleep to growth and after sleep posters had been made, the pupils organized into a Health Club and voted to adopt as the club slogan "ten hours' sleep for all members."

Try out this inventory on your own school. Add some more questions from your own thinking and observation. Individual teachers and school principals will find it stimulating to formulate for themselves a scheme for checking. Such a problem might well be the basis of several teachers' meetings. If you formulate and use such a plan for checking you will become more sensitive to your needs and discover to some extent whether you are or are not making progress.

TEACHING HEALTH

(In this column will be published each month concrete examples of good health teaching. Teachers are invited to send in contributions not exceeding 600 words and preferably less to the editor of this department. Illustrations of the actual work of children will be welcomed. Contributions accepted will be paid for but no manuscripts will be returned.)

CHILDREN'S TEETH RECORDS IN CINCINNATI SCHOOLS

THERMOMETERS no longer are being used to denote temperatures only. In various Cincinnati schools, both public and parochial, in which dental prophylaxis clinics have been established, each class is presented with a huge thermometer, which records the class average in dental care.

The thermometer is made of white cardboard, the numerals are in red, and a silk ribbon of red and white, which can easily be adjusted, marks the percentage of children having had all dental defects corrected.

The dental hygienists clean and examine the teeth of all children in the kindergarten, first, second and third grades. The upper grade children are given examinations only. An average is taken of those children who need no dental attention and those who have already visited the dentist and have had all their defects corrected. Then the thermometer is started on its upward trend.

A thermometer records the class average in dental care.

The children who have decayed teeth are given a slip notifying the parents of the condition and recommending immediate dental service. The child is also given a pink card to be taken to the dentist and signed by him as soon as he has corrected all defects. This card is then returned to the teacher and the thermometer is raised a notch, and so on as the pink cards come in, until the 100 per cent mark is reached. This means that every child in the class has had all defective teeth taken care of.

After a period of three months the dental hygienists return to the school, every mouth is reexamined and to those classes whose thermometers average 75 per cent or above by that time, the children are assured of three rewards: first, an "honor class banner" presented by the dental hygienist; second, and the greatest reward any one could wish, "good sound teeth," which means being able to chew food properly and thereby add to good health, and, third, that personal reward of being able to smile at the world with glistening white teeth, which so resemble pearls but which mean more than the most expensive pearls one could buy.

About fifty schools will be reached with our present personnel; this means approximately 35,000 children will receive dental examinations and also be reexamined.

This work is under the direction of the department of oral hygiene of the board of education and the public dental service society, an agency of the Cincinnati Community Chest.

ALVINA D. BRINKMEIER,
Chief Dental Clinic Assistant,
Board of Education,
Cincinnati, Ohio.

A HEALTH PROJECT IN THE KINDERGARTEN

IN APPLYING the health knowledge learned in the daily care of Mary, a Bradley kindergarten doll bought with the children's earnings and named by vote of the class, the following project was evolved. The suggestion came from one of the children that Mary, too, should have a place to be weighed, vaccinated and receive toxin-antitoxin injections. In a room made from a box we reproduced our health office, and painted the walls white.

When possible, furniture and other equipment were made from

white construction paper folded into 16 inch squares, cut accordingly and pasted.

For desk, filing cabinet, basket, arms of dental chair, and blanket, brown, green, red and blue paper was used. Shades, containers, sets of shelves, drawers, parts of scales, bed, top of desk, back of dental chair, instruments and medicine cabinets were cut to pattern, rolled, folded and pasted as indicated. Wooden applicators were used for window shade rollers. A paper drinking cup set in a folded and pasted cube formed the sink. Tin foil, rolled for pipes, was also cut and pasted for parts of scales and glass in cabinet, doors and mirror.

White glass shoe buttons with green paper shades sewed on a strip of white paper, upon which letters were made, formed the eye chart.

Store catalogues and magazines brought by the children furnished the nurse, dental hygienist, doctor, children, top of typewriter and telephone. These were cut out, mounted, and placed about the room.

Health material donated by the nurse was cut out and mounted for wall decoration.

The project called for many visits to the office to examine and talk about the use of the equipment.

Much of educational value resulted from the reproduction of the health office.

MAUD P. MACGILLVARY,
Director of Kindergarten,
Amityville, N. Y.

EPIDEMICS, AND WHY?

ONE method of controlling the spread of contagious diseases among school pupils is to employ a nurse for every 1,500 or 2,000 pupils. Vaccination against smallpox and toxin-antitoxin administered as a diphtheria preventive would eliminate epidemics of these two diseases.

In many school districts the salary of a nurse is considered either a waste of funds or else the funds are not available, while other districts realize the importance of health problems in the school and employ a well trained nurse to care for such problems.

The Grandview Heights board of education has employed the services of a full-time school nurse and a part-time school physician for the last six years. This school is located at Columbus, Ohio, and has a school population of 1,400, including all grades.

Since the principals and teachers usually substitute for the nurse when a nurse is not employed, the plan of controlling contagion in the Grandview schools will be told in this article with the thought that perhaps principals or teachers may desire to give it a test. It would be an impossibility for a school to have no cases of contagion. The idea is to control contagious diseases in such a manner that the epidemic stage will not be reached.

At the beginning of school in September a mimeographed form called a "disease slip" is sent home with each child. This form consists of a list of all of the contagious diseases. Parents are requested to check the diseases their children have had or against which they have been immunized and to return the form to the teacher at once. The school then promises to inform the parents should a disease occur to which the child is not immune. This is no more than a fair plan and the parents are always willing to cooperate.

DISEASE SLIP SENT TO PARENTS

We solicit your utmost cooperation to help us control contagious diseases. To insure your children against being sent home from school in case of an epidemic please *check* the diseases they *have had* and *return to their teacher at once.*

Chickenpox .....
Diphtheria ..... Immunized.....
Measles (kind).....
Mumps (both sides).....
Scarlet Fever .....
Whooping Cough .....
CHILD'S NAME:

After the disease slips have been checked by the parents and returned to the school, they are arranged in groups according to rooms with the teacher's name attached to each group and are kept in the nurse's office, since she is responsible for this part of the school program and knows of any disease in the school. However, all teachers may have access to the slips at all times. A list of the children susceptible to a prevalent disease is submitted to the teacher in whose room the disease occurs so that she may observe such children closely. She is also instructed to keep her pupils from assembly periods where they mingle with pupils of other rooms until the danger period has passed.

The following is an instance in which the spread of chickenpox was controlled recently in the school referred to. For convenience the children will be named A, B, C and D.

A, a first grade pupil at school No. 1, was known definitely to have been exposed to chickenpox, November 1, at the school. On the tenth of the month a notice was sent to his mother stating the fact and she was requested to observe him for a period of nine days. A description of the symptoms and eruption of chickenpox was given. He was to remain at home and away from susceptible children should he seem at all indisposed during the period stated. In the meantime, he moved to another part of the distric and was enrolled at school No. 2, where there had been no chickenpox.

On Saturday, November 12, A refused his breakfast but did not complain. His mother went on an errand and left him at home for a short time. While she was away B, C and D stopped in to play. The mother returned and immediately sent the children home. A felt ill at noon and slept all afternoon. His mother, knowing what to expect, had put him to bed. By Sunday, November 13, A had developed a typical case of chickenpox. His mother informed the school nurse that B, C and D had been with A on Saturday.

Since the exact date of exposure of B, C and D was known and the disease slips indicated B and C were susceptible to chickenpox (D was not of school age), a notice was sent to their mother requesting her to keep the children at home and away from susceptible children for nine days beginning November 23. She was a little unwilling to comply with this, as C was slow in school work, but consented after the explanation that no one in the building had been exposed to chickenpox except her children and since B and C were pupils in the second and third grades, respectively, an epidemic might follow should they become ill at school.

The morning of November 24 B and D were nursing typical cases of chickenpox. C did not "break out" until two days later, but all three cases appeared during the nine days of quarantine allowed. This mother appreciated the description of chickenpox that was on the form sent to her. No other cases of this disease developed. This method has been followed successfully for two years in the school.

NOTICE OF CHILD'S EXPOSURE TO MUMPS
Sent to Parents on Sixteenth Day Following Exposure

We think your child has been exposed to mumps. Watch for ten days. Swelling in front of or under the ear may appear. Child may or may not have a fever and complain of pain upon chewing. Keep child at home if at all indisposed. This does not apply to children who have had mumps on both sides.

Most teachers are aware of any indisposition of their pupils. They should endeavor to exclude all apparently ill children and by so doing a large percentage of incipient contagion will be excluded. Explain to children the importance of not playing at the home of another child who is ill unless they are sure there is no disease present.

A big problem in a school is the contacts that the children make outside of their own district.

MARIE MCELWEE, R.N.,
Grandview Heights Public School,
Columbus, Ohio.

NEW HEALTH BOOKS AND TEACHERS' MATERIALS

HEALTH education, which had its beginning in the lower grades shortly after the World War, has been slowly working its way through the upper grades and high schools. The number of new books on health for college students that have recently appeared suggests that even the colleges with their traditional courses are becoming sensitive to the needs of health education. Bilhuber and Post's "Outlines in Health Education for Women"[1] is a good text for women's colleges. The thirty-two outlines in the book are on practical subjects and well organized. Discussion, questions and references follow each outline.

INDUSTRY has found that mental health is vitally related to employment. To hire those who are adapted or who may learn to be adapted to any kind of employment and to fit them scientifically into the right place in the industry brings returns in the happiness and efficiency of workmen. Dr. Burtt in this thoroughly scholarly work[2] offers an excellent textbook on employment psychology for college students.

THIS bulletin[3] contains syllabi for the first two years of the high school covering the topics of personal hygiene and home hygiene. It is carefully arranged in the form of lessons, one definite problem being considered in each lesson. Many of the lessons give excellent directions for class or home experiments. This should be a helpful publication for high school teachers of hygiene.

THE school health bureau of the Metropolitan Life Insurance Company still continues to issue its bulletins for teachers. This bulletin[4] deals with the nature and results of eyestrain. Most of the material concerns itself with the lighting of the schoolroom. The following important suggestions for teachers are found at the end:

"Teachers may do much to improve the conditions of lighting in their own schools if they will remember the following points:

"If artificial light is available, always use it to supplement daylight on dark days. See that these artificial lights are well shaded to prevent glare.

"If the walls and ceilings are dark or dirty, use your influence to have them refinished in a light color. If the window shades are of a dark material, try to have them replaced by shades of a light material and pull them only when it is necessary to cut out direct sunlight on desks.

"Do not write on a blackboard between windows. Do not let the children sit facing the windows. In kindergarten and primary classes, where children are grouped around tables, instead of being placed at desks, try to arrange them so that no child has his back to the windows or faces the windows.

"The child's work should be illuminated to the intensity of 10 foot-candles with diffuse light and glare should be eliminated as completely as possible.

"Remember that by safeguarding a child's eyes from strain during his school years you may be preventing eye defects which would handicap him in the future."

TEACHERS will welcome this helpful book, "Health Habits—Suggestions for Developing Them in School Children."[5] The lessons are on such practical subjects as weighing, daily health practices, milk, sleep, vegetables, cereals, fruit and milk. The text contains interesting health stories and many suggestions relating to posters, projects, puzzles and games. Any grade teacher should find in this book practical projects for her grade.

UNLESS educators are numbed by the daily record of deaths and casualties appearing in our newspapers, the problem of safety should be one of the important objectives of the school. Statistics show that safety education really saves the lives of children. If this is so, we should regard safety education as important, if not more important, than some of the academic subjects.

This manual[6] should be accessible to all teachers. It is sound in theory and suggestive as to practical methods of teaching. Dr. Harold Rugg in the introductory chapter pays his respects to this volume in the following words: "It introduces to teachers the spirit and procedure of safety education. It states sound principles upon which they are to be developed. It supplies excellent illustrations of concrete application. It assembles definite lesson suggestions. It puts in the teacher's hands facts that can be used in classroom exercises."

TO THE person who wishes to get a sympathetic insight into the newer type of progressive school "The Child-Centered School"[7] by Rugg and Shumaker should be a fascinating approach. It contrasts the old and new so sharply that it is easy to understand the difference between the two and why the authors believe that the child-centered school is superior.

"The new school organizes itself around the child's intention to learn; the old school organized itself around the teacher's intention to teach him." The new educational program has as its foundations: freedom, not restraint; pupil initiative, not teacher initiative; the active, not the passive school; and the child's interest as the orienting center of the school program.

The authors maintain that the child-centered school is far ahead of the formal school in its care of the child's health. Although the formal school has often provided free medical examinations, clinical treatment for defective children, systematic treatment and practice of health habits and regular bodily exercise, it has often seriously interfered with the mental and physical health. The newer school, they maintain, is made for the children.

"First of all, then, the new school frees the child from all physical restraints. Out go rigid desks and stationary furniture. Space there must be. Growing muscles demand freedom of movement. This reform alone has eliminated an enormous amount of strain and nervous tension from school life.

"This freedom of movement is extended to include the out-of-doors. The new school does not shut the child in from nature and the open. Wherever possible, the school is placed in a setting of fields and woods. Buildings are designed to give easy access to the out-of-doors through open-air classrooms, balconies, verandas, wide windows."

Well, we wish we could go on quoting from this inspiring book. Perhaps your school finances will not permit your taking your pupils out to an environment where they can see the blue sky, the long line of the horizon, the squirrels jumping around in the trees, hear the robins and the chickadee and grow a garden, but you are bound to have your soul refreshed if you read it. To get the most good out of it make note of the theories and practices that you find, and approve. Then try to find some way in which you can apply them to your school. Such a study of this book will be as valuable or more valuable than a course in education at some summer school.

1. By Gertrude Bilhuber and Idabelle Post. Price, $2. Pp. 187. A. S. Barnes & Co., New York, 1928.
2. Principles of Employment Psychology. By Harold Ernest Burtt. Pp. 568. Houghton, Mifflin Company, Boston, 1926.
3. Syllabi for Day and Evening High Schools, Hygiene, First and Second Year. Pp. 48. Adopted by the Board of Superintendents of New York City, 1929.
4. The Lighting of Schools (Health Bulletin for Teachers). Pp. 4. Metropolitan Life Insurance Company, New York, March, 1930.
5. Revised and edited by Bertha M. Parker. Pp. 79. National Dairy Council, Chicago, 1929.
6. An Introduction to Safety Education. A Manual for the Teacher, with an introductory chapter by Harold Rugg. Price, 30 cents. Pp. 100. National Safety Council, Chicago, 1925.
7. By Harold Rugg and Ann Shumaker. Pp. 358. World Book Company, Yonkers-on-Hudson, 1928.

New Books *on* Health

ALLERGIC DISEASES

Their Diagnosis and Treatment. By Ray M. Balyeat, M.D. Third edition, revised and enlarged. Cloth. Pp. 395, with 83 illustrations. F. A. Davis Company, Philadelphia, 1930.

HERE is a book primarily prepared for a medical audience but it should serve as an excellent source of advice for any one interested in hay-fever, asthma or eruptions due to sensitivity to pollen or in any of the other diseases known to the medical profession as allergic diseases.

The author begins with the history of hay-fever and asthma and follows with a discussion of the causes and a list of all of the plants that pollinate. He considers the relations of animals and chickens to asthma and hay-fever and the possibility of becoming sensitized from germs. He has the feeling that real asthma and hay-fever resorts are few in number and that the reason for the failure of such resorts is the fact that farmers have gone into the woods and brought back the very seeds and grasses that the patients have been trying to escape. The author discusses the importance of treatment, methods of desensitization and the manifestations brought about by these conditions.

The book is easily readable, is printed in large type, is well illustrated and should be not only of interest but exceedingly useful to sufferers from these conditions.

MORRIS FISHBEIN, M.D.

DOCTOR AND PATIENT

By Francis W. Peabody, M.D. Cloth. Price, $1.50. Pp. 95. Macmillan Company, New York, 1930.

AT THE time of his death in 1927, Dr. Francis W. Peabody was 46 years old. He was a professor of medicine in Harvard Medical School and had achieved high honors in many branches of medical service. There are scientists whose minds are devoted wholly to their scientific studies, who think constantly in terms of scientific units, and whose lives are confined within the walls of their laboratories. There are others who think beyond those walls, even to the stars. The philosopher of the past concerned himself but little with the facts of life and thought much concerning the soul and his emotions. The modern philosopher is more likely to be a scientist who can think beyond the units with which he works. Of this type was Dr. Francis W. Peabody.

In the book here reviewed appear four essays written by Dr. Peabody before his death and having to do with the tremendous problem of the relationship of the physician to his patient, to his clinic, to his university, and to mankind in general. They reveal a realization of the changing nature of the practice of medicine and the belief of Dr. Peabody that the trend toward specialism has swung too far.

> If the public will but realize that it can have no greater asset than a close and continued personal relationship with a wise, sound, general adviser, it may rest assured that there will always be an adequate response to the call for service. In order to get the best type of medical men to turn to general practice, however, it is necessary for the public to understand that the qualifications for general practice are at least as high as those which are requisite for specialism, and to appreciate that the general practitioner is worthy of its respect and confidence.

In his essay on "The Care of the Patient," Dr. Peabody emphasizes particularly the importance of considering the patient as a human being and not as a set of diseased organs and tissues. Here he says:

> There are moments, of course, in cases of serious illness when you will think solely of the disease and its treatment; but when the corner is turned and the immediate crisis is passed, you must give your attention to the patient. Disease in man is never exactly the same as disease in an experimental animal, for in man the disease at once affects and is affected by what we call the emotional life. Thus, the physician who attempts to take care of a patient while he neglects this factor is as unscientific as the investigator who neglects to control all the conditions that may affect his experiment. The good physician knows his patients through and through, and his knowledge is bought dearly. Time, sympathy and understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine. One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient.

Another essay is devoted to the manner in which the physician must avail himself of the newer laboratory methods in making a diagnosis, and in a final essay Dr. Peabody reveals his conception of the soul of the clinic. The volume is one that may be read with pleasure and for inspiration by every one interested in any way in human health and happiness.

MORRIS FISHBEIN, M.D.

WOMEN AND ATHLETICS

Compiled and Edited by the Women's Division, National Amateur Athletic Federation. Paper. Pp. 95. Price, 75 cents. A. S. Barnes and Company, New York, 1930.

THIS book embodies the principles and policies of the Women's Division of the National Amateur Athletic Federation on the subject of athletics for girls and women. The change in woman's economic and social position has brought about a change in physical ideals also. Some concern and confusion have resulted. To offset this, the directors of physical education for women have carefully studied out the proper course.

Among the fifteen contributors to this volume, Blanche M. Trilling of the University of Wisconsin, has an important chapter on "Safeguarding Girls' Athletics." It sounds the keynote of the problem which is foremost in interest to all mothers and is the issue of chief importance among physical directors. Advice is given concerning the best type of activities for girls, the advisability of public tournaments, precautions to be observed during the menstrual period, sensational publicity of games and sensible costumes.

Mabel Lee of the University of Nebraska sees in sports and games an educational, dynamic force. She cautions against a passion for superior technic at the expense of character training. Athletics provides a great opportunity to educate along the lines of correct dress as well as the larger purposes of health attainment and training in worthy citizenship.

Another pertinent topic considered is "Competitive Athletics for Girls," in which a safe and sane course is outlined and a warning given on the dangers of overfatigue in adolescent girls. The policies of the organization sponsoring the book are contained in a platform which promotes programs of physical activities for all members, protects athletics from commercial exploitation, minimizes individual accomplishment and restricts rewards to those that are symbolical and of little intrinsic value.

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Answer.—"Proud flesh" is a term applied to exuberant granulations made up of cells that have developed to fill a defect in tissue, but show no tendency toward the formation of a firm scar or cicatrix. They are not uncommon in ulcers associated with varicose veins. This delay in healing sometimes corrects itself but often requires treatment, first, if possible, to remove the cause, as in a case of varicose veins, and second, local treatment to stimulate the proper growth of the granulations. What remedy is suitable in any particular case can be determined only by a physician who has examined the patient and knows the conditions present.

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The only protection against such infection is the sterilization of milk by pasteurization. It is true that the vitamin content of milk is somewhat diminished by this heating process, but this is not a matter of importance to the adult living on a mixed diet of fruit, vegetables and other items, and, in infant feeding, these vitamins can be supplied by supplementing the milk with orange or tomato juice.

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Hair and Scalp Disorder

To the Editor:—Can you tell me something of the causes of itching scalp besides dandruff? I have been troubled for two years with a more or less continuous, annoying itch and have tried external medicaments and salicylates to relieve itch. It persists, although some days it is absent. I shampoo often and massage my scalp five times a week. I have taken various tests—blood count, eye refraction and blood metabolism rate—to determine whether it is a reflex condition. It does not seem so. Is there anything that could be taken internally? There is an excessive fall of hair, and the two conditions seem to be correlated. I have visited several doctors, but external medicines seem not to help. D. S. M., Illinois.

Answer.—Itching limited to the scalp may, in rare instances, be the expression of a local "essential pruritus" such as occurs occasionally on the palms or on the face and more commonly in other regions. Its causation is usually obscure and may be related to various functional or organic disorders, such as are much more frequently associated with general pruritus. Hodgkin's disease, diabetes, toxic thyroid, gastro-intestinal dysfunction and various drugs (especially the hypnotics) should be given consideration as possible causes. The duration of the itching in the case related would probably exclude the organic disorders.

In the great majority of instances itching of the scalp indicates the presence of a disease of the scalp. In persons of nervous temperament the sensory symptom of itching may overshadow other less prominent symptoms of a local disorder and thereby obscure the diagnosis. In the case described and in the absence of a personal examination, it appears reasonable to deduce the presence originally of a pityriasis steatoides complicated by seborrhea, which later assumed a more inflammatory character and probably developed into dermatitis. The duration, the oiliness of the hair, the excessive fall of hair and the character of the itching, taken in association, indicate the presence of a local disorder of the scalp, seborrheic dermatitis most likely, with anatomic changes.

It is also probable that overtreatment is responsible for much of the discomfort. A disorder that is essentially inflammatory, though the inflammation may not be grossly evident, is certain to be aggravated by massage and frequent shampoos. Also, various local medicaments may act as irritants if used too often or in too concentrated a form; or there may be an individual idiosyncrasy.

Internal medication is of no benefit unless designed for the correction of an associated condition, such as a gastro-intestinal disorder, or nervous instability. However, considerable benefit may be expected from local treatment. This includes the daily use of a lotion, and application of an ointment to the scalp on every fifth or seventh day. The proper ingredients of such lotion and ointment are to be prescribed by the physician in charge of the patient. The lotion is rubbed lightly, not massaged, over the entire scalp once a day until it is almost dry; then the hair is combed.

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Answer.—It is possible to desensitize persons against ivy poisoning. As long ago as 1919 an article was published in *The Journal* of the American Medical Association on the technic of desensitization by the internal administration of ascending doses of a diluted tincture of the drug. Since that time various methods of desensitizing or treating actual attacks by the injection of a toxin have been employed. In an extensive experience with the desensitization by internal treatment there has been almost 100 per cent success when the treatment has been properly carried out.

This method is safer than eating the leaves of the ivy. The eating of ivy leaves was employed by lumbermen many years ago. It will produce an immunity, but a higher degree of immunity is produced by gradually increasing the dose. At the same time, the person who is susceptible is less likely to develop ivy poisoning about the mouth and lips. Many persons who formerly spent three months each year in bed with ivy poisoning have been free from the condition since taking the ivy drug.

Hernia

To the Editor:—I am a young man, 23 years old and 5 feet 8 inches tall, with a physical development above the average yet possessing unusually weak abdominal muscles. A year ago I developed an inguinal hernia but could not locate the cause as my work required no special exertion. A month after this finding I was operated on and released with the usual advice. Three months later I went to work in a radio factory after passing the physical examination. After testing radio sets weighing 25 pounds I had to place them on a belt overhead. In doing this I tried to use only my shoulder muscles. After a few weeks' work another hernia, about the size of a small egg, developed immediately above my incision. A neighborhood physician advised me to wear an athletic supporter holding a pad over the region of the hernia. He believes that it may cure itself and tells me to wear this for about three months and then see him. He also advised me to see the physician who operated. The surgeon was much surprised at the weakness of my abdominal region and advised a truss. Now, three months since the first observation of the hernia, it has been reduced to about the size of a nickel. Can I build up my abdominal muscles safely and rid myself of this distressing condition? What exercises shall I do? M. S., Pennsylvania.

Answer.—This young man's experience is not infrequent. The reappearance of a hernia after an operation sometimes happens even though the operation is done by a most skilful and experienced surgeon. It is impossible for us to give intelligent advice as to the use of a pad or a truss or as to the kind and amount of exercise needed to strengthen the abdominal muscles. The right thing has been done in consulting the surgeon who did the operation and his advice should be followed. The fact that the second hernia is decreasing in size is encouraging.

Every child desires this new, delicious cereal with "roughage VEGETABLE EFFECT"

It helps Mothers and children to become better pals, while healthful habits are more easily maintained

HEINZ of "57" fame is now helping in a new way to solve an age-old problem in thousands of homes.

HEINZ now makes the daintiest of rice flakes . . . the kind your children love . . . in which a fine food-substance known to scientists as *vegetable-cellulose* is incorporated . . . a natural, food-substance prepared from rice itself.

When moisture is absorbed after eating, the bulk, or volume of the cellulose is multiplied *four to six times*, forming a mild, gentle bulk and roughage. This is of *great value* especially where mothers . . . no matter how they urge .. have difficulty in persuading children to eat vegetables in the right amounts. In the form used by HEINZ, preparation of this vegetable-cellulose costs much more than the rice grain itself, yet you pay no more.

NOT BRAN

HEINZ Vegetable-Cellulose forms the same kind of bulk and roughage that vegetables themselves contain—*soft and fluffy*, not harsh or irritant in any way. Any normal person can have it daily for a lifetime with only good results. Think what this means to children whose health-habits are irregular . . . and to *you mothers* who are so concerned!

Perhaps the main secret of this method's great success lies in its *attraction* to the child, for he or she is conscious only of enjoying an alluring food.

Let your children try it for two weeks as a test. Serve HEINZ Rice Flakes *twice daily for one week to start* the benefits; once daily thereafter to maintain them. See your children brighten and improve.

Don't use in place of vegetables, which are always necessary, but in addition to them—to supplement their bulk and roughage content.

BE SURE

In ordering, remember that a patented HEINZ process is required to include this great advantage in a breakfast cereal. No other cereals of any type, therefore, can offer it to you. You must be sure that the rice flakes you get are *HEINZ*

GUARANTEED

Naturally all of rice's energizing food value is included. If not delighted by both flavor and results your grocer will gladly refund the purchase price.

Just as good for grown-ups as for children. Let your menfolks try them and try them *yourself*.

ASK YOUR PHYSICIAN

He will tell you of the efficiency of vegetable-cellulose in the absorption of moisture and the resulting bulk and roughage.

H. J. HEINZ COMPANY
Makers of the "57 Varieties"

Enjoy these radio talks • Tuesday and Friday mornings at 10:45 Eastern Daylight Time, Miss Gibson of the Home Economics Department, H. J. Heinz Company, will broadcast new and delightful recipes over WJZ, KDKA, and 34 other stations associated with the National Broadcasting Company.

ONE OF THE 57

Children can't resist this flavor so they don't *resist these benefits.*

a new delicious kind

HEINZ RICE FLAKES

PREPARED WITH PURE RICE CELLULOSE

New Books *on* Health

ALLERGIC DISEASES

Their Diagnosis and Treatment. By Ray M. Balyeat, M.D. Third edition, revised and enlarged. Cloth. Pp. 395, with 83 illustrations. F. A. Davis Company, Philadelphia, 1930.

HERE is a book primarily prepared for a medical audience but it should serve as an excellent source of advice for any one interested in hay-fever, asthma or eruptions due to sensitivity to pollen or in any of the other diseases known to the medical profession as allergic diseases.

The author begins with the history of hay-fever and asthma and follows with a discussion of the causes and a list of all of the plants that pollinate. He considers the relations of animals and chickens to asthma and hay-fever and the possibility of becoming sensitized from germs. He has the feeling that real asthma and hay-fever resorts are few in number and that the reason for the failure of such resorts is the fact that farmers have gone into the woods and brought back the very seeds and grasses that the patients have been trying to escape. The author discusses the importance of treatment, methods of desensitization and the manifestations brought about by these conditions.

The book is easily readable, is printed in large type, is well illustrated and should be not only of interest but exceedingly useful to sufferers from these conditions.

MORRIS FISHBEIN, M.D.

DOCTOR AND PATIENT

By Francis W. Peabody, M.D. Cloth. Price, $1.50. Pp. 95. Macmillan Company, New York, 1930.

AT THE time of his death in 1927, Dr. Francis W. Peabody was 46 years old. He was a professor of medicine in Harvard Medical School and had achieved high honors in many branches of medical service. There are scientists whose minds are devoted wholly to their scientific studies, who think constantly in terms of scientific units, and whose lives are confined within the walls of their laboratories. There are others who think beyond those walls, even to the stars. The philosopher of the past concerned himself but little with the facts of life and thought much concerning the soul and his emotions. The modern philosopher is more likely to be a scientist who can think beyond the units with which he works. Of this type was Dr. Francis W. Peabody.

In the book here reviewed appear four essays written by Dr. Peabody before his death and having to do with the tremendous problem of the relationship of the physician to his patient, to his clinic, to his university, and to mankind in general. They reveal a realization of the changing nature of the practice of medicine and the belief of Dr. Peabody that the trend toward specialism has swung too far.

If the public will but realize that it can have no greater asset than a close and continued personal relationship with a wise, sound, general adviser, it may rest assured that there will always be an adequate response to the call for service. In order to get the best type of medical men to turn to general practice, however, it is necessary for the public to understand that the qualifications for general practice are at least as high as those which are requisite for specialism, and to appreciate that the general practitioner is worthy of its respect and confidence.

In his essay on "The Care of the Patient," Dr. Peabody emphasizes particularly the importance of considering the patient as a human being and not as a set of diseased organs and tissues. Here he says:

There are moments, of course, in cases of serious illness when you will think solely of the disease and its treatment; but when the corner is turned and the immediate crisis is passed, you must give your attention to the patient. Disease in man is never exactly the same as disease in an experimental animal, for in man the disease at once affects and is affected by what we call the emotional life. Thus, the physician who attempts to take care of a patient while he neglects this factor is as unscientific as the investigator who neglects to control all the conditions that may affect his experiment. The good physician knows his patients through and through, and his knowledge is bought dearly. Time, sympathy and understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine. One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient.

Another essay is devoted to the manner in which the physician must avail himself of the newer laboratory methods in making a diagnosis, and in a final essay Dr. Peabody reveals his conception of the soul of the clinic. The volume is one that may be read with pleasure and for inspiration by every one interested in any way in human health and happiness.

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WOMEN AND ATHLETICS

Compiled and Edited by the Women's Division, National Amateur Athletic Federation. Paper. Pp. 95. Price, 75 cents. A. S. Barnes and Company, New York, 1930.

THIS book embodies the principles and policies of the Women's Division of the National Amateur Athletic Federation on the subject of athletics for girls and women. The change in woman's economic and social position has brought about a change in physical ideals also. Some concern and confusion have resulted. To offset this, the directors of physical education for women have carefully studied out the proper course.

Among the fifteen contributors to this volume, Blanche M. Trilling of the University of Wisconsin, has an important chapter on "Safeguarding Girls' Athletics." It sounds the keynote of the problem which is foremost in interest to all mothers and is the issue of chief importance among physical directors. Advice is given concerning the best type of activities for girls, the advisability of public tournaments, precautions to be observed during the menstrual period, sensational publicity of games and sensible costumes.

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This method is safer than eating the leaves of the ivy. The eating of ivy leaves was employed by lumbermen many years ago. It will produce an immunity, but a higher degree of immunity is produced by gradually increasing the dose. At the same time, the person who is susceptible is less likely to develop ivy poisoning about the mouth and lips. Many persons who formerly spent three months each year in bed with ivy poisoning have been free from the condition since taking the ivy drug.

Hernia

To the Editor:—I am a young man, 23 years old and 5 feet 8 inches tall, with a physical development above the average yet possessing unusually weak abdominal muscles. A year ago I developed an inguinal hernia but could not locate the cause as my work required no special exertion. A month after this finding I was operated upon and released with the usual advice. Three months later I went to work in a radio factory after passing the physical examination. After testing radio sets weighing 25 pounds I had to place them on a belt overhead. In doing this I tried to use only my shoulder muscles. After a few weeks' work another hernia, about the size of a small egg, developed immediately above my incision. A neighborhood physician advised me to wear an athletic supporter holding a pad over the region of the hernia. He believes that it may cure itself and tells me to wear this for about three months and then see him. He also advised me to see the physician who operated. The surgeon was much surprised at the weakness of my abdominal region and advised a truss. Now, three months since the first observation of the hernia, it has been reduced to about the size of a nickel. Can I build up my abdominal muscles safely and rid myself of this distressing condition? What exercises shall I do? M. S., Pennsylvania.

Answer.—This young man's experience is not infrequent. The reappearance of a hernia after an operation sometimes happens even though the operation is done by a most skilful and experienced surgeon. It is impossible for us to give intelligent advice as to the use of a pad or a truss or as to the kind and amount of exercise needed to strengthen the abdominal muscles. The right thing has been done in consulting the surgeon who did the operation and his advice should be followed. The fact that the second hernia is decreasing in size is encouraging.